NEIGHBORS AROUND THE WORLD

J. Russell Smith

Frank E. Sorenson

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NEIGHBORS AROUND THE WORLD

J. Russell Smith *and* Frank E. Sorenson

THE JOHN C. WINSTON COMPANY · *PHILADELPHIA*

CHICAGO TORONTO

PASADENA ATLANTA DALLAS

OUR NEIGHBORS GEOGRAPHIES:

OUR NEIGHBORS AT HOME

NEIGHBORS AROUND THE WORLD

NEIGHBORS IN THE AMERICAS

NEIGHBORS IN THE UNITED STATES AND CANADA

NEIGHBORS IN LATIN AMERICA

NEIGHBORS ACROSS THE SEAS

Illustrated by Lorence F. Bjorklund and Nell Reppy
Cartography by Dr. Hubert A. Bauer

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To Our Readers

NEIGHBORS AROUND THE WORLD is another journey in geography. In OUR NEIGHBORS AT HOME you learned that geography is an interesting subject because it tells so much about the ways in which all people live. You can travel while you read.

Geography is the study of the land, the people, and the ways in which the people live on the land. Some people live where it is very cold during most of the year. How do you think they build their houses? How do they get their food? What do they eat? What do they wear? What work do they do? What games do the boys and girls play? How do they learn about people in other places? Some people live where it is very hot most of the year. How does their way of life—their food, clothing, shelter, work, play—differ from that of the people in a cold region?

Do you know that there are some places on our globe that are almost always hot, some places that are almost always cold? The interesting fact is that two regions, both very hot, may be in opposite parts of the globe but they usually are about equally close to the Equator. If you go "around" the globe you find the same kinds of "strip" regions. That is why your journeys in NEIGHBORS AROUND THE WORLD will be exactly that—around the world. You will learn all about the people who live in cold forest lands, whether those lands are in North America, in Europe, or in Asia. Later, you will learn about people in another kind of forest, a hot, wet, steamy forest that is located near the Equator in Central and South America and also in Africa.

Do you think people in any of these climates are independent? That is, can they get along without knowing people and trading goods with those in another region? In a very limited way, it is true that the people of one region might be able to live without other regions; but it is generally true that people are dependent upon other regions. Look around you. The wood and metal in your classroom came from different regions, the wool and cotton in your clothing came from widely separated regions and possibly from different countries, the leather in your shoes probably came from some other country and region than that in which you live. Food, clothing, tools, machinery, building materials, toys—all are examples of the interdependence of people.

In NEIGHBORS AROUND THE WORLD you will travel to far-off lands. You will see how each region has its characteristic products. You will see how the products are used in that region and how they are exchanged with the people in other regions. You will see how life is made more comfortable for all peoples as they learn to share their products.

The way of life in some places may sound very strange to you. But just remember that your way of life sounds strange to boys and girls in other lands when they read about you in their geography books. Just one example—in this book you will learn how the Chinese villagers and the African desert people govern themselves. The methods

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they use are different from those in this country, especially those used in a city. You will learn that the Chinese village is almost a "law unto itself" because it is small and has little contact with its neighbor. You will learn that the desert people are almost continuously on the move. They do not have permanent villages. Since the needs of the people are different, their governments are different. Other people are not "queer" because they are different. You and your NEIGHBORS AROUND THE WORLD are products of the places in which you live!

To visit each place in the world mentioned in this book would be fascinating but would take years of travel and cost much money. The authors have used words, photographs, and drawings to help you "see" your neighbors. Look carefully at the colored drawings before you start to read each unit. The drawing is a "natural" scene of the region to be studied. Does it look warm or cold? Can you tell whether it is wet or dry? Is it high in the mountains or on lowlands? If you were to move there what would you have to do to build a house, get food and clothing, make a living, and travel or communicate with others? Then read the unit, pay close attention to the photographs that show you what you could expect to see if you were to visit the region. Follow any activity that is included with the photograph. When you finish each unit you will find a page of drawings to test your reading. Can you identify the objects, where they would be found, how they would be used?

Study the globes in Unit I. These maps show that our world really is a globe, that the globe is made up of large water and land areas, that each land area is composed of "strips," and that your journeys will be to each strip around the globe.

Many activities are placed within as well as at the end of each chapter. To know geography it is necessary not only to read about it but do something to make sure that you have learned. After you have finished the activities you can say, "I know something about my NEIGHBORS AROUND THE WORLD." Maybe you will want to learn more about the lands you have visited. Bibliographies give you clues to other interesting books to read.

When you have finished these journeys around the world you will be ready to read more about the large land areas or continents. Next year you can visit North and South America in NEIGHBORS IN THE AMERICAS.

The Editors

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Corps of Engineers

Chapter 1

Sam Flies to Greenland

The Surprise

Sam Tyler is excited. It is the last day of school. But best of all, it is his birthday, and his father has promised him a surprise birthday present. Sam does not stop to play with the other boys today. He hurries to get home quickly.

"Hello, Mother!" calls Sam as he opens the door. "Where is Dad?"

"Hello, Son," calls Mr. Tyler from the next room. "Are you ready to hear about your present?"

Of course Sam is ready.

"Next week I am leaving for Greenland to take my turn working at the weather station. You wouldn't like to come for a few days, would you?"

"Greenland!"

Sam's eyes open wide. Go to Greenland! Go in an airplane! See the things Dad has told about—the ice cap, the snow, the icebergs! O-o-h!

Mr. Tyler is a weather man. He stays at a weather station in Greenland for several months each year. He sends out radio reports of the weather in Greenland.

"I am going to take Mr. Johnson's place at the weather station," says Mr. Tyler. "He has been there for several months. It is my turn to stay there now. You can come back on the plane with Mr. Johnson."

Sam thinks the next few days pass very slowly. At last the time for leaving comes, and Sam and Father say good-bye to Mother.

From the train Sam watches the houses, the telegraph poles, and the cows in the fields. "The train goes much faster than I can go on my bicycle! But

United Air Lines

Sam traveled in a transport plane like this one. The pilot is telling the boys about it. If you were one of these boys, what questions would you ask the pilot?

wait till I get in the airplane," says Sam to himself.

They leave the train in the city and take a taxicab to the airport.

There are many kinds of planes at the airport. Sam stops a moment to see one being loaded with baggage. He sees planes taking off and planes landing.

"Oh Dad!" exclaims Sam, "what a wonderful birthday present!"

Mr. Tyler leads the way to the place where the plane for Greenland is waiting. The pilot, Jack Brown, sees them.

"Hello there, Mr. Tyler!" the pilot calls, and waves his hand.

"Hello, Jack." And they shake hands.

"This is my son, Sam. I am taking him to Greenland for a birthday present. What do you think of that?"

"Fine!" says the pilot, "and congratulations, Sam. Glad to have you with us. Your Dad has made two trips with me. I know you will enjoy your birthday present."

Sam thinks he is going to like the pilot, Jack Brown.

1. What is Mr. Tyler's work at the weather station?

Off to Greenland

The passengers and the pilot take their seats in the plane. Now the engines are running. Soon the plane taxis along the runway, then—up, up, up it goes.

"Oh, Dad," shouts Sam, "it is really true! I am on my way to Greenland!" He sees buildings, fields, cows, and roads on the farms near home. But how small they look! Houses look even smaller as the plane goes higher. Soon Sam can see nothing at all, for night has come.

"Better sleep, Son," says Mr. Tyler. "It looks like a good night for flying."

Sam is afraid he will miss something if he sleeps. But before long he is dreaming—dreaming he is at the controls of the plane!

When the morning sun awakens Sam, the plane is flying over land covered with dark green forest. Sam thinks the shining lakes and green trees of this forest are very different from the farm lands he saw last evening. He is surprised that there are no houses, no buildings anywhere. Mr. Tyler tells Sam that this is called the Great Northern Forest.

"Look, Sam," says Jack. "See those wild geese down there below us? They are flying as fast as geese can fly, but we are going faster."

After flying over the Great Northern Forest, the plane slowly comes down. The radio tells the pilot how to land.

Jack Brown brings the plane down very smoothly. Sam watches every move Jack makes. He is sure now that he wants to be a pilot and fly a plane as well as Jack does.

1. What does Sam see from the plane in the morning?

The Airport in Labrador

"Is this Greenland, Dad?"

"No, we are in Labrador. This is a wonderful airport at the edge of the forest, and beside the ocean. This airport is used by big planes that fly from the United States to Greenland, to Iceland, and on to Europe," explains Mr. Tyler.

While they eat breakfast with the men of the port, Sam learns that people were brought from the United States to build the airport.

Sam scarcely can believe what he sees. There is a long row of warehouses, and gasoline tanks, and oil tanks. Sam sees piles of lumber and some boxes marked, "Food" and "Clothes."

"Almost everything that might be needed by people who go in the planes is here," says Mr. Tyler. "Most of these things have been brought by ship and by airplane from the United States."

Pilot Brown shows Sam the hangar. They talk to men who can repair any kind of airplane. These airplane mechanics came from the United States. The mechanics help Jack to go over his plane very carefully. They make sure that everything is right. The gasoline tanks are filled. The tires are looked over. The plane now is ready to leave for Greenland.

"Good-bye, fellows!" shouts Jack.

"Good luck to you!" the men reply. "See you soon!"

The plane rises above the airfield and heads out over the ocean. In a short

Sam saw a part of the Great Northern Forest as he flew to Greenland. The forest is dotted with many lakes. In what ways is this part of the world different from the farm lands near Sam's home?

National Film Board of Canada

Keystone View Co.

Seaplanes carry some of the food and other supplies to the people in Greenland.

time Sam can see no land at all, only water. He is looking down on the Atlantic Ocean. Huge pieces of ice are floating in the water. "Some of the pieces are lots bigger than our house," thinks Sam. His father tells him that these icebergs have come from Greenland.

Most of Greenland is covered with great sheets of ice. But sea ice is not smooth and glassy. You could not slide on this ice as you would on a skating pond.

U. of Mich. Greenland Exped.

1. Ask your teacher to help you find Labrador on a globe or a flat map.

Greenland at Last!

Sam is tired of looking at the ocean, and he falls asleep. When Jack calls out, "Greenland!" Sam rubs his eyes and presses his face close to the window. He sees land and green grass. He sees a village of small houses that seem to be made of wood. Two ships lie in the water near the village. There is an airfield nearby and long runways for the planes, warehouses for supplies, and a big hangar.

"Who lives here, Dad? Who runs this airport?"

"Eskimos live in the village, and a few people from Denmark. The United States runs the airport. Hundreds of Americans worked for many months to build it. It was hard work to make a landing field on this crooked, rocky shore. Then, too, the earth is frozen hard for half the year."

The plane does not land, but keeps flying above many high, steep hills and bare rocks. Some of the rocks are as big as a baseball field or a football field. In half an hour, Sam sees something white. They seem to be flying toward a white mountain.

"That looks like a mountain of ice," says Sam.

Jack nods and says, "That is the Greenland Ice Cap."

1. Greenland is a large island north of Labrador. Can you find it on a globe or a flat map?

The Great Ice Cap

Sam looks again through the field glasses. "How high is the ice cap, Dad?"

"In some places, it is more than a mile high, and all ice, just solid ice."

Capt. Bartlett from Gendreau

Some of the people in Labrador live in villages such as this one. Why must these villagers depend upon the sea for their living? Can you tell why Labrador has few trees and little grass?

"Ice! Ice! Ice! Nothing but ice!" Sam says the words over and over to himself as he gazes on a world of ice and snow. No trees, no grass, not even rocks! Just the plane, flying over the ice cap.

Father and the pilot study the map. They look at the ice cap through field glasses. In a few minutes, the pilot hears the voice of the radio man calling from the Greenland Weather Station. This helps the pilot to find his way. The plane circles, heads down, and lands. Its wheels run smoothly on the ice.

The men run to welcome them. For weeks they have seen only each other, the ice cap, and the sky.

Mr. Tyler and Jack shake hands with Mr. Johnson, the weather man, and with the other men of the station. Sam looks around eagerly. He knows he will enjoy his visit here. There are so very many things to see! There is so very much to learn!

Some Things to Do

1. Do you know the meanings of these words? If not, look for them in your dictionary. Find a sentence in the chapter in which each one is used. Read it carefully to be sure you understand how the word is used.

    taxis
    hangar
    mechanics
    warehouse
    icebergs

2. Talk with your classmates about these questions—
    a. How do you think Sam spent the few days before flying to Greenland?
    b. Why did Mr. Tyler and Sam use an airplane to go to the weather station in Greenland?
    c. How long do you think it took Sam to travel from his home to Greenland?

A Short Quiz

1. Name the three ways in which Sam traveled from his home to Greenland.

2. Make a list of five things Sam saw at the airport in Labrador.

Black Star

Chapter 2

Storms Ahead!

The Cargo Plane

"Cargo plane coming!" shouts Mr. Johnson from the weather station.

Sam looks into the sky. Yes, far away, he can see a tiny speck. Soon he hears the sound of engines. Now the plane is landing. The men shout for joy. The cargo plane brings supplies and news, letters from home, fresh food, books, and papers. These are the things the men want. Every day the radio brings them news of the outside world, but letters will bring news of their own families. The men hurry to unload the supplies.

"Gasoline!" one shouts. "Gasoline to run our light plant and to cook our food!"

"And fuel oil to keep the house warm," says another with a grin.

The men unload boxes of dried fruit and canned fruit and vegetables. There are cans of meat, beef, fresh hams, smoked bacon, and many sacks of potatoes. Fred Lars, who cooks the food, finds some chickens!

"You fellows finish unloading. I am going to get supper started," he says. He hurries to the kitchen, carrying a box of dressed chickens and some fresh vegetables.

The men dig a hole in the ice, and put the meat into the hole to freeze. There it will keep for months. There is no mouse, no rat, no wild animal to disturb it here on the ice cap. At last everything is put away. Fred calls them to supper. On the table are chicken, fresh peas, new potatoes, lettuce and tomatoes, and milk. Only two days ago, this food was in a market in the United States. Now the men are enjoying these good things on the Greenland Ice Cap, a long, long way from the United States!

After supper, Mr. Tyler unpacks his heaviest clothing. The weather is very cold in this part of Greenland. Warm suits and heavy boots are needed.

"Tomorrow I'll show you some of the things in the weather station," he promises Sam. "And, also, tomorrow you will meet Mr. Bauer, who draws and paints maps. Perhaps he will show you some of the interesting maps he has made."

Everyone listens to the favorite evening radio program, just as families do at home. Sam goes to sleep, a very tired, but a very happy boy.

1. Why do you think supplies must be brought to the ice cap from the United States? Why are these supplies brought by plane?

The Weather Station

Sam is awakened the next morning by Jack's voice. "Good we came in yesterday. Storm warnings are being sent out. No pilot would think of bringing a plane here today."

After breakfast, Sam goes with his father to the office of the weather station. Mr. Tyler shows him some maps Mr. Johnson has just made.

"Are these maps like the ones Mr. Bauer makes?" asks Sam.

"No, Son. Mr. Bauer's maps show different parts of the world. Mr. Johnson makes new maps about the weather each day. Do you see all these lines? They tell what kind of weather to expect. The little arrows tell about the wind. They tell how hard the wind blows, and in what direction it blows."

"Dad, why is there a weather station in Greenland? You say only a few people live here. What difference does Greenland weather make to anybody?"

"That is a good question, Son," says Father with a smile. "You see, the weather has a way of moving from Greenland across the Atlantic Ocean. Greenland weather goes on to Europe."

Sam thinks about this for a few moments as he takes another look at the map. Then he says, "It is like this, isn't it? The storm we have here today will cross the Atlantic Ocean tomorrow, or the next day."

"That is just about right, Sam. Men on ships or in airplanes over the Atlantic Ocean need to know what kind of weather Greenland is having. Then they will know what kind of weather to expect on the next day, and the day after that. Several times each day this station sends out radio messages to tell about the weather here. Ship captains at sea get our messages. Airplane pilots and weather stations in the United States get them, too."

Sam is surprised to see so many instruments. Father says each one has

A Coast Guard boat has rescued United States Army fliers who were forced down on the Greenland Ice Cap. How do you think the rescuers were able to locate the fliers? How can rescuers locate ships in distress?

U. S. Coast Guard

something to do with studying weather on the ice cap.

Mr. Johnson has been studying the instruments closely. He now steps to the sending radio, and calls—"TTN 50150—03867 — 26527 — 06846 — 60310 — 33746—73592—1134!"

Sam does not know what the numbers mean, but the men on the ships and in airplanes and the men at weather stations know the meaning. The figures tell them about weather at this place at this time. This kind of secret message is called speaking in code.

Sam is very much interested in these things.

"I am glad that the station is here to tell people about the weather, especially to warn them about storms," thinks Sam. "Maybe Mr. Johnson's code numbers said, 'Storm on the Atlantic tomorrow.' "

1. Explain in your own words why there is a weather station in Greenland.

Some Things to Do

1. Use these words and phrases in sentences that show their meaning—

fuel
weather station
map
instrument
code

2. In a book or a magazine find a picture of the kind of plane in which Sam traveled. Perhaps your teacher will help you start a picture scrapbook.

A Short Quiz

Some of the sentences below about the weather station are true. Some are not true.

On a sheet of paper, copy the sentences that are true.

1. The men at the weather station are glad to see the cargo plane because it is bringing their families.
2. The radio brings news of the world to the men each day.
3. Gasoline is used to run the light plant.
4. Coal is used to keep the house warm.
5. Meat will stay fresh and be safe from animals if it is stored in a hole in the ice.
6. Warm clothing is needed because the weather is cold in this part of Greenland.
7. Mr. Johnson's weather maps and Mr. Bauer's maps are alike.
8. Greenland weather moves across the Atlantic Ocean.

Do you listen to radio reports on weather or read the forecasts in newspapers? Here in Iceland, army men are gathering weather information. Why do you think weather reports are important?

U. S. A. A. F.

Byrd Antarctic Expedition II

Chapter 3

The Two Ice Caps

Mr. Bauer's Maps

Mr. Bauer, with a package under his arm, comes into the office.

"Your father tells me you will be interested in seeing my pictures of the globe," says Mr. Bauer.

"That will be fine," says Sam. "I want to know more about the globe."

Mr. Bauer opens the package, and hands a picture like Globe I to Sam.

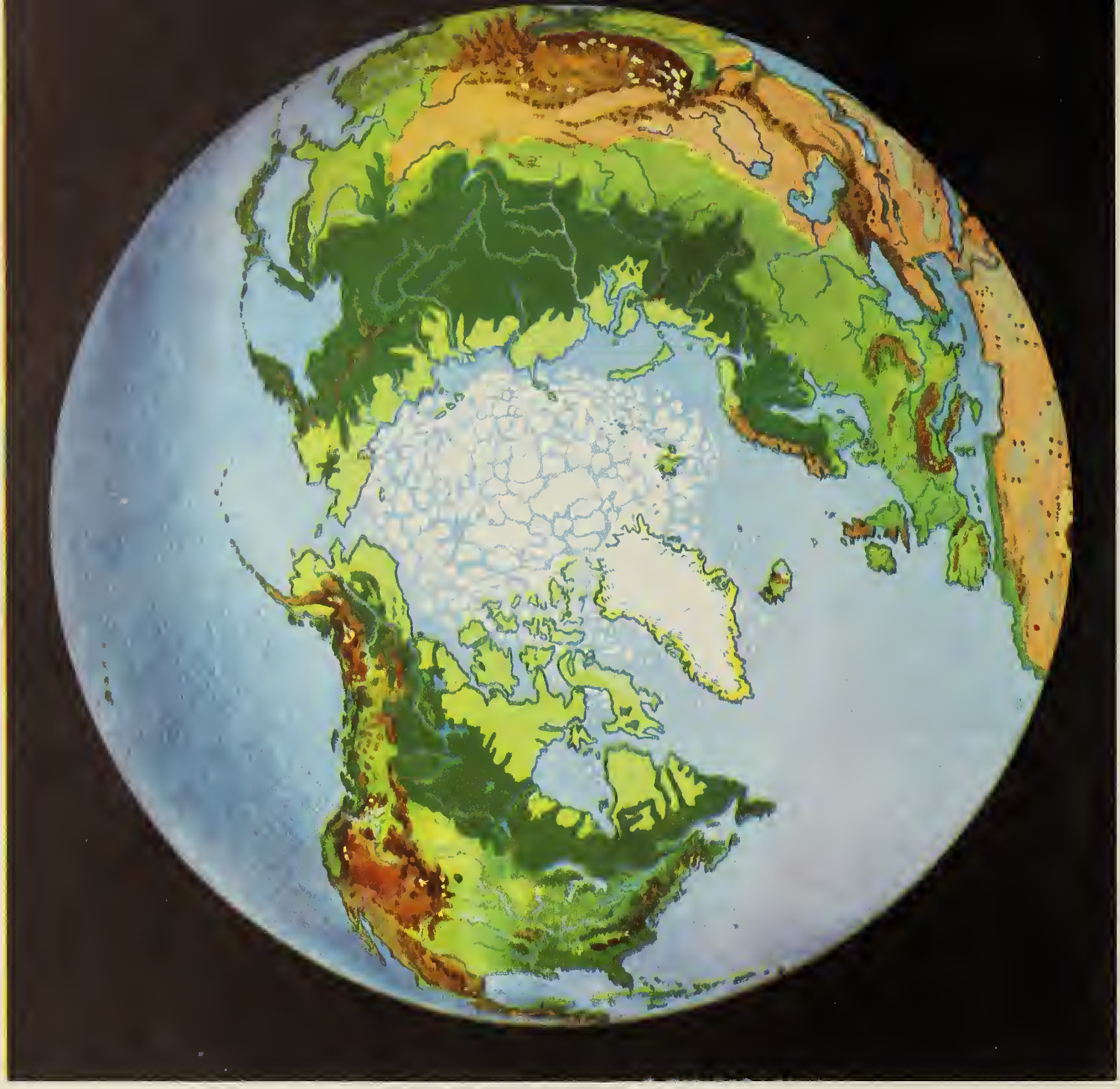
"A globe is a very interesting thing," begins Mr. Bauer. "If something is round like a ball, we say it is a sphere or globe. One sphere may be as small as a marble, and another sphere may be as big as the earth. We speak of the earth as being a sphere or globe."

"The earth does not seem round like a ball," says Sam.

"That is because the earth is a very, very big ball. As we look around us, we see only a little of the earth's surface. My pictures show different parts of the earth or globe," says Mr. Bauer. "Globe I shows one way of seeing the whole of Greenland. To see Greenland this way, you must imagine you are far above the earth. My picture gives some idea of what you would see if you looked down on this part of the earth.

"This big, solid white part is Greenland. The white shows the ice cap. Do you see the bit of green around the edge? The green color shows grass and the blue shows water. The many white spots in the blue water near Greenland show ice floating in the Arctic Ocean. There is so much floating ice in this ocean that ships cannot cross it.

"The small piece of land to the east of Greenland," says Mr. Bauer, "is called an island because it has water all



Globe I, Greenland Ice Cap

around it. The name of the island is Iceland. Two other islands to the east of Iceland are Ireland and Great Britain."

"What is the big body of land in the lower part of the picture?" asks Sam.

"That is part of North America. The dark green part is the forest you saw before you got to Labrador."

"Is Greenland the only place in the world that has an ice cap?"

"No, there is another ice cap, a much larger one. We must take a long journey to see that one," replies Mr. Bauer.

"I'd like to know about it," says Sam.

1. Find Greenland. How can you tell there is grass just on the edges of this land?

2. The Arctic Ocean has many large pieces of ice floating in it. Point to the Arctic Ocean.

3. What color on the map shows water?

4. What is the name of the island directly east of Greenland? Why is it called an island?

5. Point to and name the two islands to the east of Iceland.

6. What do we call the large block of land south of the Arctic Ocean?

7. Point to the Great Northern Forest. What color is it? Did Sam fly over this forest before or after the plane landed in Labrador?

8. Where do you live in North America?

The Americas

"All right," says Mr. Bauer. "Suppose we leave Greenland." Mr. Bauer hands Sam a picture like Globe II. "This picture is quite different from the other. It shows two large bodies of land, and two very large bodies of water. We call the large body of land surrounded by water a continent.

"The upper continent is named North America.

"The continent that is joined to North America by a narrow strip of land is South America.

"The water to the east of both continents is called the Atlantic Ocean.

"The water to the west is called the Pacific Ocean.

"I have painted North America in different colors," says Mr. Bauer. "Every color shows a different kind of land. The dark green part is forest. The lighter green part shows farms or grass. The brown or yellowish parts are land where but little rain falls. If there is but little rain, there is no forest and not much grass. In such places, the earth looks brown or yellowish."

"What interesting pictures you make," says Sam. "But tell me, Mr. Bauer, why does North America look different in these two pictures?" Sam holds the pictures of Globes I and II side by side.

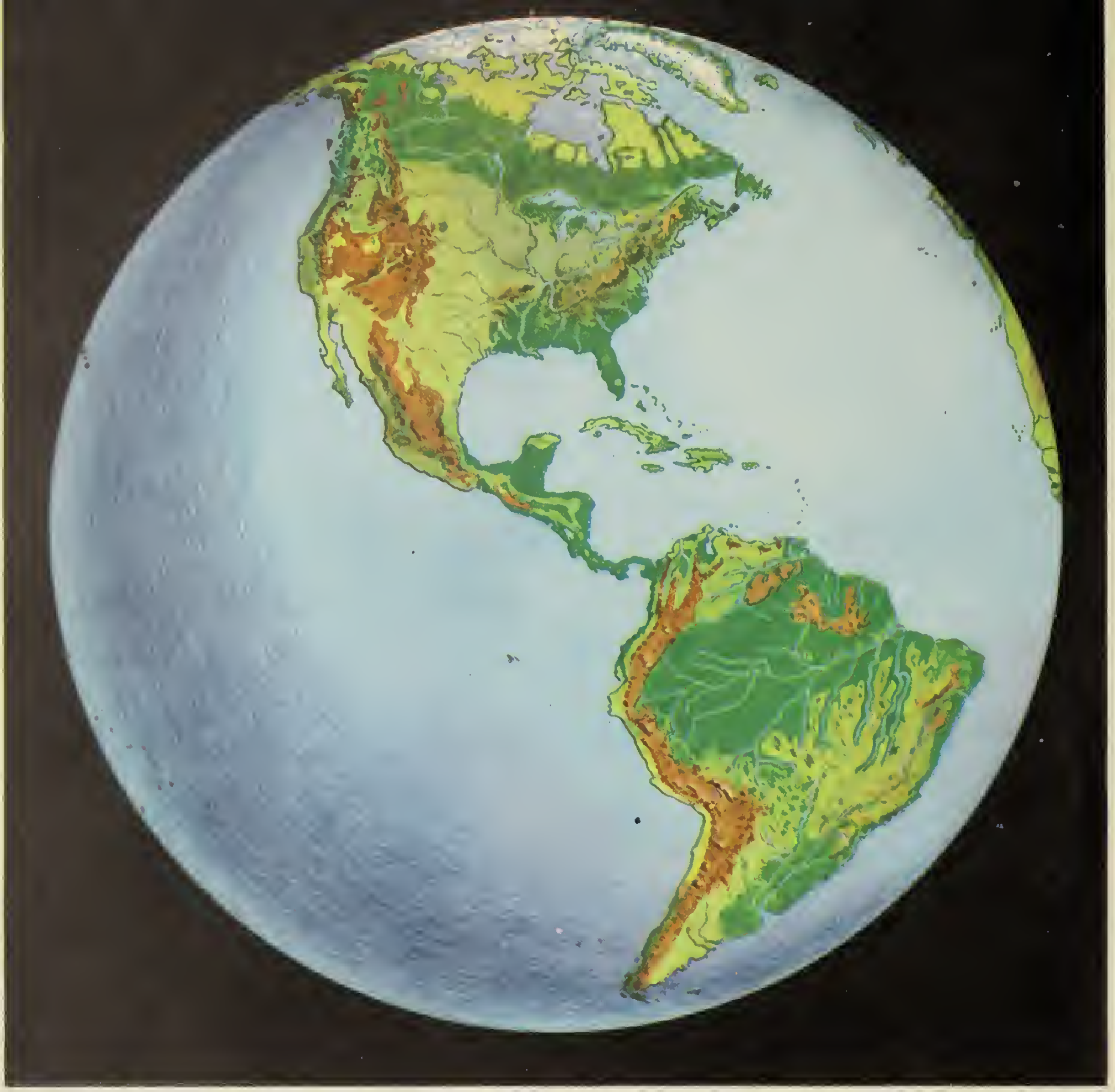
"A very good question, my boy," says Mr. Bauer. "As I have said, the earth is round like a ball or globe. But in these two pictures of the globe, we are looking at the earth from two different directions.

"Bring our globe from the closet there, and I will show you. Look at North America from two positions. First look at it as you did on the globe showing the ice cap in Greenland. Now look at the globe from the direction you saw it on the map of the Americas."

"I see it now," says Sam.

Soil Conservation Service

Here are pictures of farmland and land where little rain falls. In what colors are these kinds of land shown on Mr. Bauer's globes? Why do you think Mr. Bauer chose these colors?



Globe II, The Americas

1. Point to North America. In what way is this map different from Globe I?

2. Point to the Atlantic Ocean. On which side of the Americas is the Atlantic Ocean?

3. What is the name of the continent joined to North America by a narrow strip of land?

4. What is the name of the water to the west of the Americas?

5. Find Greenland; Iceland; Labrador. Point to the Arctic Ocean.

6. The Great Northern Forest has been painted in dark green. What kind of land does the lighter green show?

7. Can you find the farm lands? What do the brown or yellowish parts mean?

Antarctica

"Now let us look at the other ice cap.

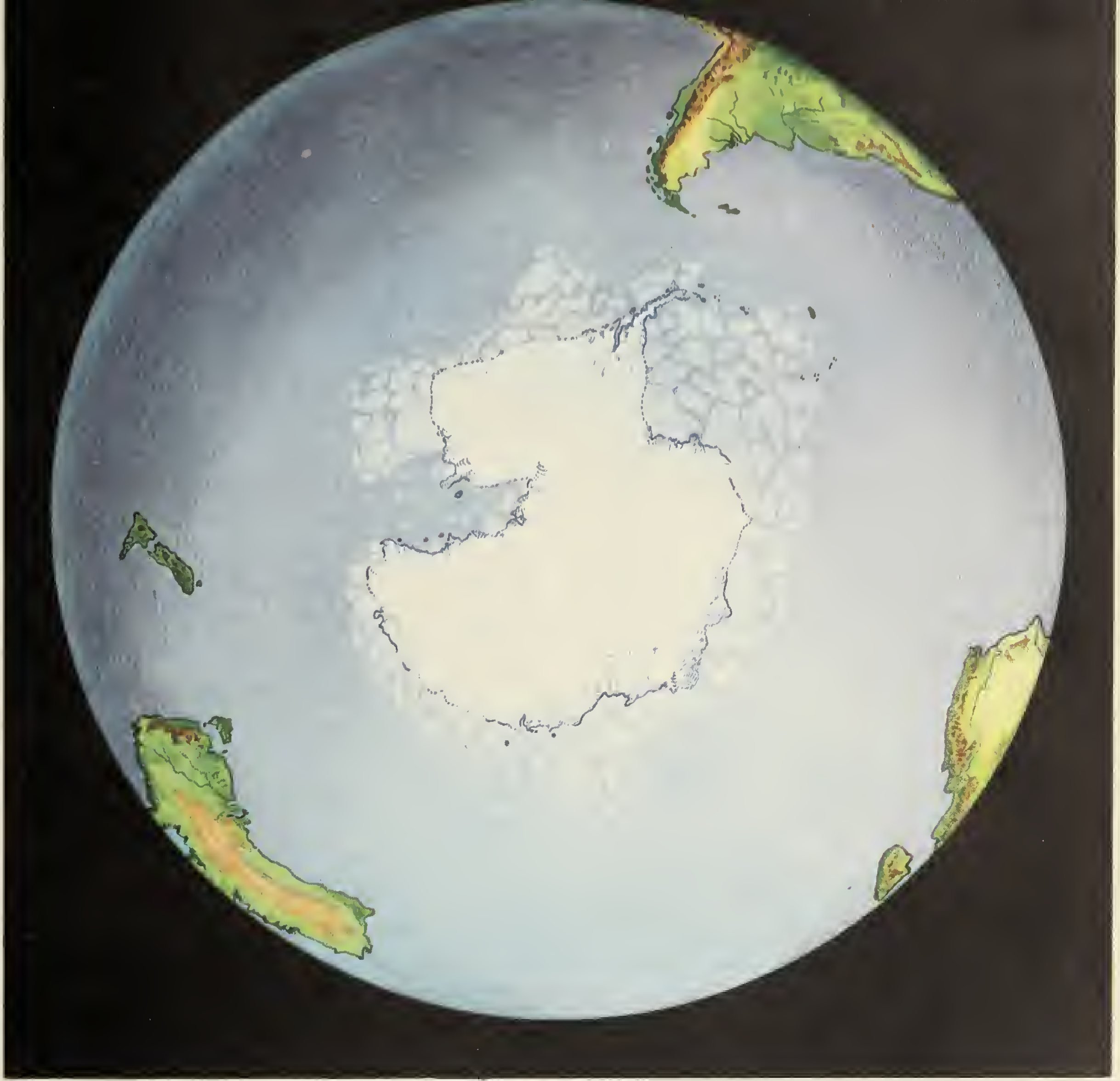
"We have come to another part of the globe," says Mr. Bauer as he hands Sam another painting. "This is the other ice cap."

"It is much bigger than the Greenland Ice Cap, isn't it?" says Sam.

"Yes, it is six times as big."

"What a lot of ice!" exclaims Sam. "What is under the ice?"

"There is land under the ice, just as it is in Greenland. We call it the Antarctic Continent. It is often called just



Globe III, Antarctica

Antarctica. The ice cap covers almost every bit of the continent of Antarctica. You see huge blocks of ice floating in the ocean near Antarctica, just as you do in Greenland. The Antarctic Ocean and this floating ice are on all sides of Antarctica. Some of the pieces of ice are as big as a city block or as big as many farms."

"What a cold continent that must be!" exclaims Sam. "Who lives in Antarctica?"

"No person lives there. It is not a good place to make a living," says Mr. Bauer. "As you know, Greenland has a little land with grass and flowers in summer. But no flowering plant has ever been found in Antarctica by people who have gone there to explore."

1. What is the name of the continent that is covered by an ice cap?
2. How much larger is this ice cap than the Greenland Ice Cap?
3. What ocean is on all sides of Antarctica?

Only Explorers Visit Antarctica

"Please tell me about explorers," begs Sam.

This is the story Mr. Bauer tells Sam about explorers and the great ice cap.

"Once some explorers went to Antarctica and sailed for days along the edge of the ice cap. The ship sailed along a wall of ice that was much higher than the ship. The explorers could see nothing but the ocean and the high wall of ice. One day they heard a loud roar and a crash. Thousands of tons of ice broke from the wall and fell into the sea. Many icebergs were made right before the explorers' eyes! The falling ice made waves that rocked the ship as though it were a toy. If the ship had been a little closer, falling ice would have crushed it.

"When explorers do find a place in the ice wall where they can go ashore, they have to dig holes in the ice, and make their houses in the holes. They dig the holes in the ice to get away from the terrible wind.

"In summer, men can travel over this ice cap with ponies. Some explorers bring Eskimo dogs from Greenland. Some travel in airplanes, and others on sleds pulled by tractors."

"How big is this ice cap?" asks Sam.

"Measure it this way," says Mr. Bauer. "Suppose you could cross it in an automobile. Your car goes forty miles an hour. You ride five hours a day. It would take you ten days to cross the land of ice the short way. It would take you fifteen days to cross it the long way.

"This ice cap is larger than the whole of the United States."

1. Why do explorers on Antarctica make their houses in holes in the ice?

2. Can you find how many miles it is across Antarctica the short way? The long way?

Penguins and Seals

Mr. Bauer tells Sam that Antarctica is like Greenland in one way. The water along its icy shores has many fish. Many seals live on the fish. There are also birds that live by catching fish.

The most interesting fellow in all Antarctica is the penguin. Penguins are birds that cannot fly. Their wings are too short. The wings of the penguins are really a kind of flipper which they use in swimming. The penguin swims very fast. It catches fish for food.

Sam wonders how penguins make a nest without sticks or leaves or grass.

Mr. Bauer tells him about a kind of pocket that Mother Penguin has in the feathers between her legs. There she keeps her egg. She takes care of only one egg at a time. With her beak she pushes the egg she has laid into the feather pocket between her legs. She then places one foot between the pocket and the ice. Her body keeps the egg warm. Penguins sit this way on the ice, hour after hour. When Mother Penguin goes to catch fish, Father Penguin puts the egg into his pocket. There it is kept safe and warm until the mother returns.

The penguins have neighbors. Seals also live on the ice. Seals and penguins are alike in some ways. Both catch fish to eat. Both like to swim in the cold water and to sun themselves on the ice. Both sit and sleep on the ice between meals. There is plenty of room, so the penguins and the seals do not quarrel. They live together very happily. There are no wild animals on the ice of Antarctica to bother the birds. Penguins are not afraid of men. Perhaps they think men are just another kind of penguin.

Sometimes men come in ships to catch seals and whales in this cold sea near Antarctica. These whalemen and sealers live in their ships. When they have finished hunting, they sail away to their home countries.

Gendreau

Penguins look somewhat like little fat men in dress suits. These interesting birds cannot walk or run very well, but they are excellent swimmers and divers. They are kept warm by a layer of fat under the skin.

Sometimes airplanes take people to the Antarctic to explore. But no one wants to live there. There is no way to make a living except by catching seals, fish, or penguins. Penguins are not good for food.

"You see, Sam," says Mr. Bauer, "Greenland is on the airplane route from North America to other countries. People have reasons for going to Greenland. Antarctica is on the road to nowhere, so only explorers go there."

"I'd like to go sometime," says Sam. "Thank you, Mr. Bauer, for telling me such an interesting story. Here we are on the Greenland Ice Cap and you have told me about another ice cap on the other side of the world. Now I am learning something."

They both go over to the window and look out over the ice cap. There is nothing but ice and snow. Just then a few snowflakes float down.

1. Name three ways in which seals and penguins are alike.

2. Why does no one want to live on Antarctica?

Some Things to Do

1. In this chapter you read about and located on the globes several land and water bodies. You will use the names of these islands, continents, and oceans all through your study of geography. Learn to write the names listed below.

Greenland
Iceland
Labrador
North America
Arctic Ocean
Atlantic
Pacific
Antarctica

2. Use each of these words in a sentence to show its meaning.

sphere
island
continent
ocean
iceberg
explorer
seal
penguin

3. Draw a picture showing icebergs and a ship.

4. Discuss with your classmates why there is no wild life, except penguins and seals, in Antarctica.

A Short Quiz

Here are some sentences in which the facts are right, but the reasons given are wrong. Write the sentences giving the correct reason for each fact.

1. Some parts of the world have heavy forests because little rain falls there.
2. Grass and flowers do not grow in Antarctica because there is not enough rain.
3. Explorers in Antarctica travel in airplanes or on sledges because travel by automobile costs too much.
4. Penguins cannot fly because they are such large birds.

Chapter 4

We Go Around the World

"Do you care to see another picture?" asks Mr. Bauer. "In this one we look toward the Arctic Ocean. We say that we are looking north. North is a direction. As we look toward the north our backs are toward the south. That is another direction.

"There are two more directions. To find them, stand with your face to the north. Raise both arms as high as your shoulders. Point straight away from each shoulder. Your right hand points in the direction called east. Your left hand points west. Now we have the four main directions, North, South, East, West. In every part of the world, there are these four main directions."

The Atlantic Ocean

Sam shows Mr. Bauer that he understands the globe. He does it by pointing out South America, North America, Iceland, the Pacific Ocean, Greenland, ice in the Arctic Ocean, and some ice floating in the Antarctic Ocean.

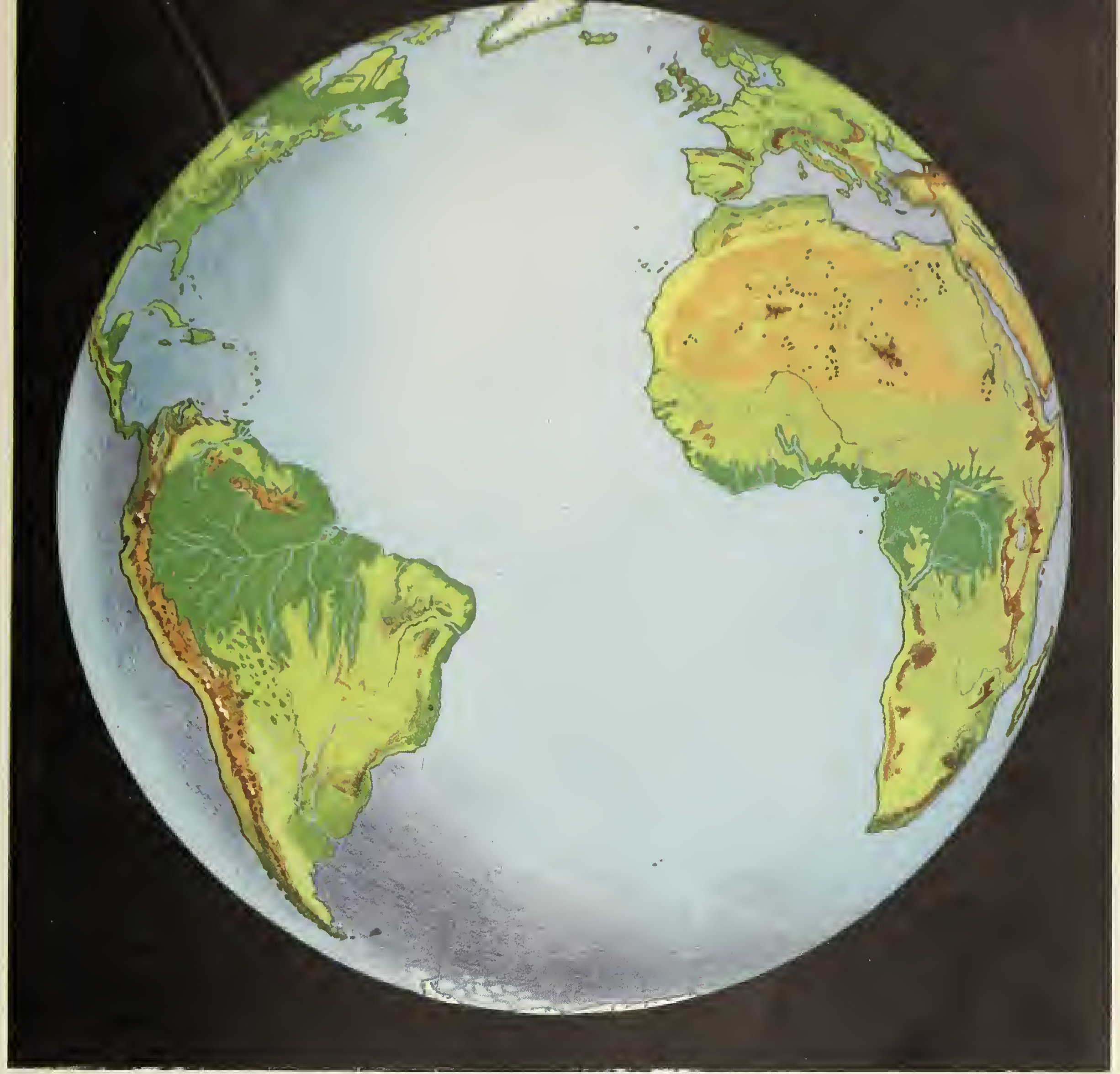
The very large block of land at the right, or east side of the picture is the continent of Africa.

Between Africa and Greenland, we see a part of the continent of Europe. Sam finds Great Britain and Ireland on this globe, and also on Globe I.

"Now," says Mr. Bauer, "we have seen the two ice caps—the two cold parts of the world. In this picture we are looking down on the hot part of the world. The dark green is forest, a hot forest.

1. What is the name of the ocean east of North and South America?

2. Point out South America, North America, Iceland, and Greenland. Can you find ice



Globe IV, The Atlantic Ocean

in the Arctic Ocean? Can you find ice in the Antarctic Ocean?

3. What is the continent at the right side of the picture?

4. What direction is Africa from South America?

5. What direction is South America from Africa?

6. Point to a part of the continent of Europe.

7. What are the names of the islands to the west of the continent of Europe?

8. What do the dark green parts in Africa and South America show? In what way is this different from the dark green part in North America?

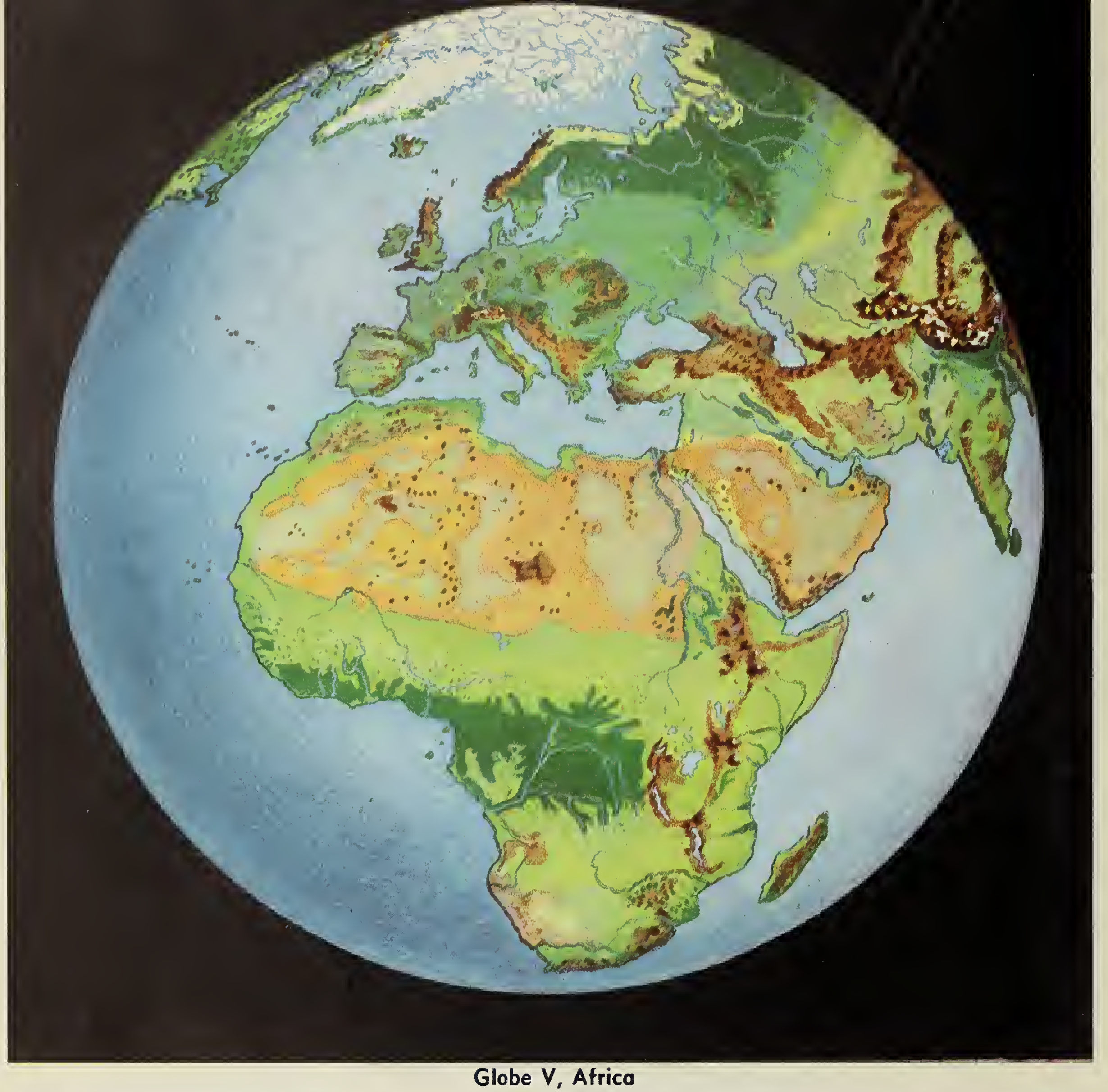
Africa

The large block of land with much yellow color is the continent of Africa.

Mr. Bauer shows Sam a long body of water between Africa and Europe. The name of this long body of water is Mediterranean Sea. The word Mediterranean means in-the-midst-of-the-land.

The light colored land in Africa is land where but little rain falls. Some of this land is so dry that nothing grows there, and we call such land desert.

There is a wide band of light green color between the yellow of the desert



Globe V, Africa

and the dark green of the forest. This is grassland.

The large body of water to the east of Africa is called the Indian Ocean.

1. Here we see the continent of Africa from a different direction. What does the yellow color in the northern part of Africa tell you?

2. Can you point to Greenland and a bit of North America? Can you find Labrador? Europe? Iceland?

3. Suppose you wanted to take an airplane trip from Labrador to Europe. With your finger, show on the globe how you would go. Name three places at which you could stop.

4. In which ocean do you see blocks of ice?

5. Point to the long body of water between Europe and Africa and tell its name.

6. What direction is this sea from Africa? From Europe?

7. Point to the hot forest in Africa.

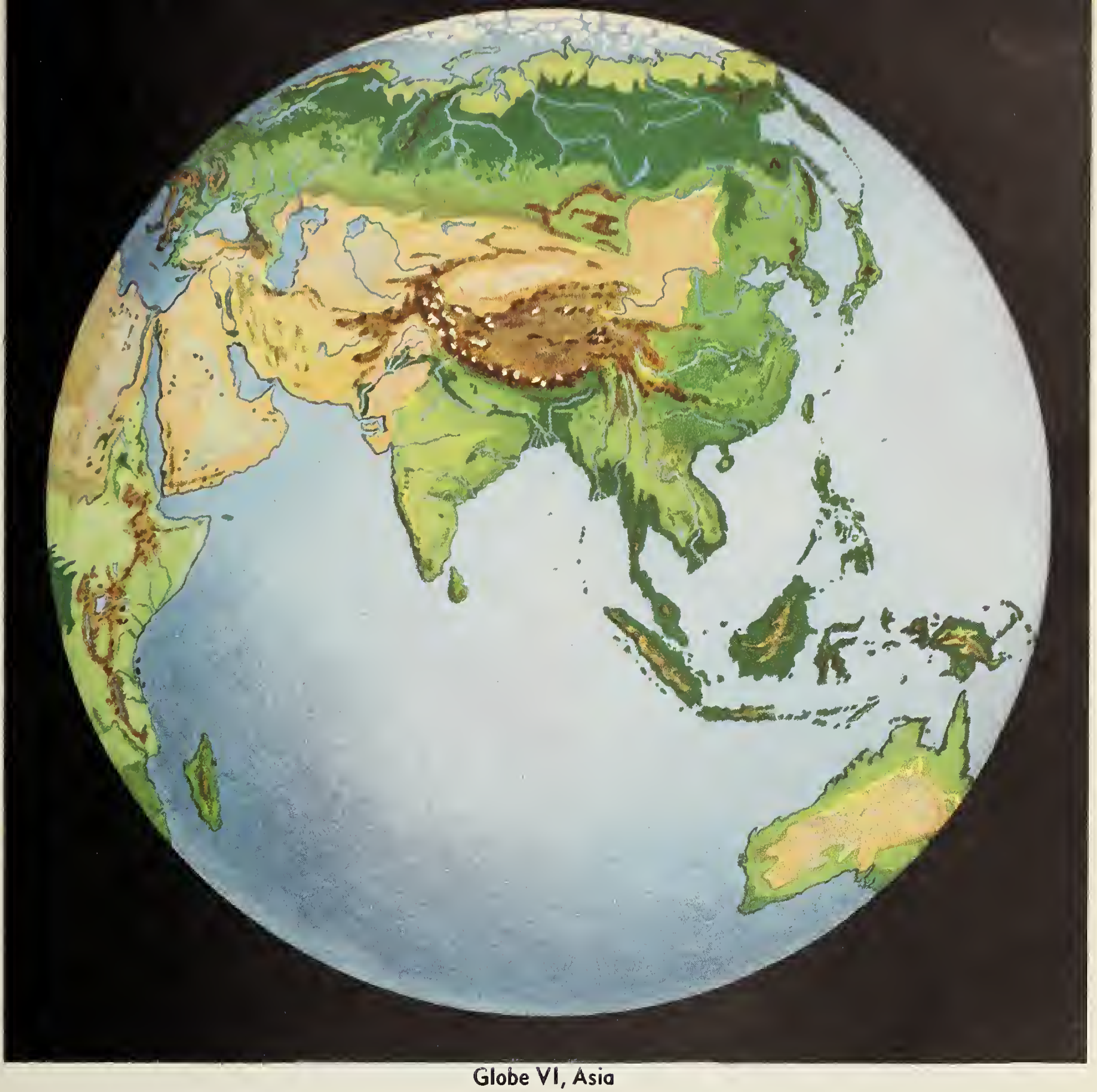
8. What does the light green part between the desert and the hot forest show?

9. What is the name of the large body of water to the east of Africa?

10. What direction is Africa from the Arctic Ocean?

Asia

"Sam, we are now looking at the part of the globe that lies east of Africa.



Globe VI, Asia

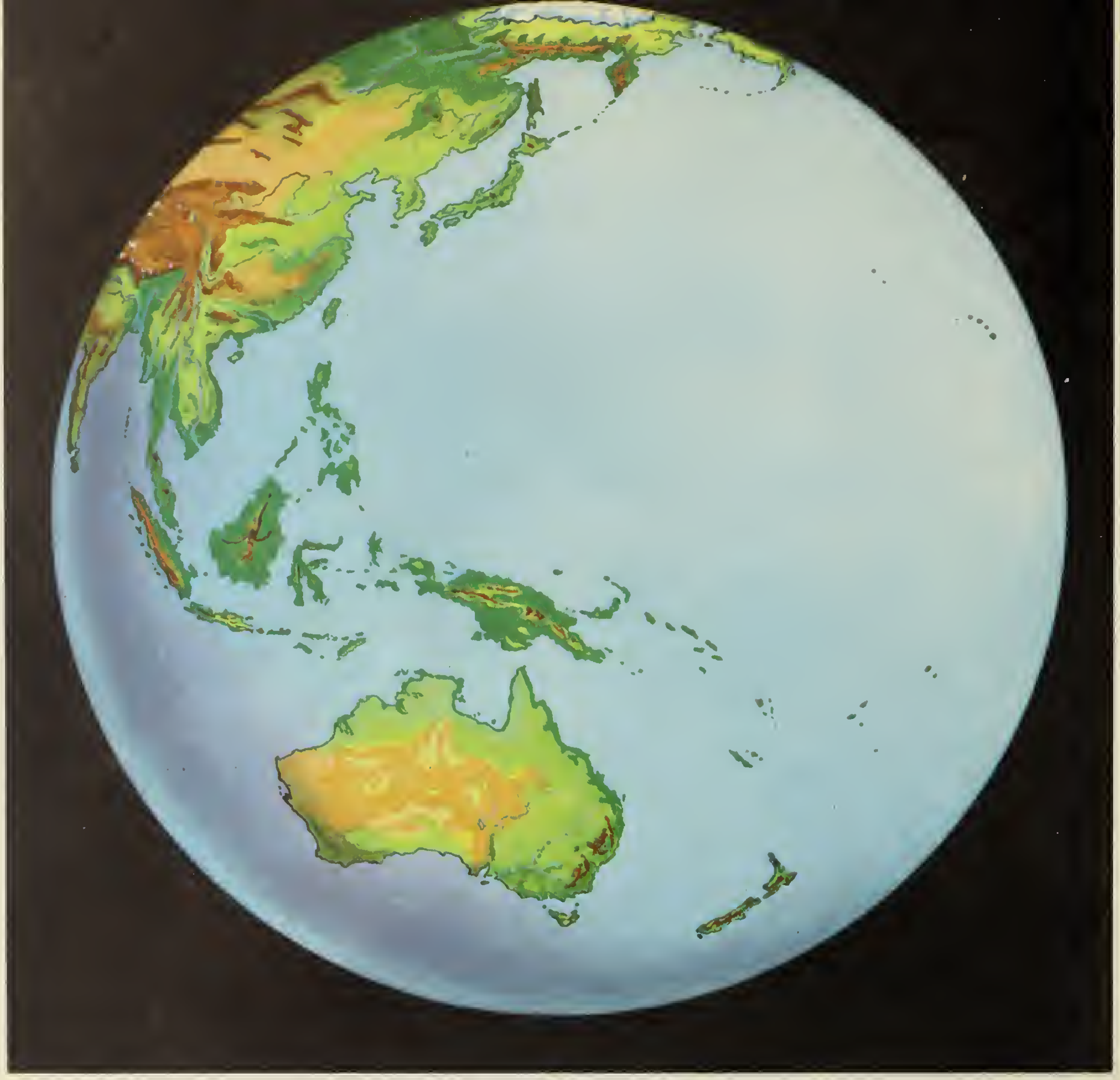
"We are looking at the continent of Asia. Asia is the largest continent.

"Perhaps you can point to islands on this part of the globe," says Mr. Bauer.

Mr. Bauer asks Sam to tell what he sees in this picture that he has already seen in other pictures of the globe. Sam points to Africa, the Indian Ocean, a part of the Mediterranean Sea, and a part of Europe.

"You see, Sam," says Mr. Bauer, "Asia has a lot of land that is the same color as North Africa. One part of Asia has much rain and many trees."

1. Here we are looking down on the largest of the continents. What is it called?
2. Ask your teacher to help you find the islands of Japan and the Philippine Islands. Where is Japan? Where are the Philippine Islands?
3. Point to a part of Africa. What direction is Asia from Africa?
4. What is the large body of water east of Africa and south of Asia?
5. Can you find a part of the Mediterranean Sea, and a part of Europe?
6. Begin at the northern strip of Asia and tell what each color shows about Asia.
7. What other continent has a large strip of dry land?



Globe VII, The Pacific Ocean

The Pacific Ocean

"We are still looking at the whole world," says Mr. Bauer.

"As we look at this part of the globe, we see much water and little land. The water to the right side of the picture is the Pacific Ocean. It is larger than all the continents together."

Sam points to several islands and calls their names.

"That is good," says Mr. Bauer. "The large land at the south is the continent of Australia. It is the smallest of the continents. You see many small islands far out in the Pacific Ocean. The people who live on these islands are fond of swimming and boating. They make long journeys in very small boats.

"If we move on to the east, we come to the same view that we saw on Globe II. My globe pictures have taken us around the world. We have seen all of the seven continents, and the five oceans that make up our global world.

"We have looked down on lands that are far apart. But the distance between them seems shorter now that we have airplanes. We can really go from one part of the world to another part far away in a few hours if we go in a plane. An American air pilot said to me, 'In the last four days, I have been in four continents.'

"Perhaps you will fly over some of these continents some day, Sam," continues Mr. Bauer.

"I surely hope I do," says Sam.

"It is wonderful to be living in the new air age," says Mr. Bauer.

"I want to thank you, Mr. Bauer, for letting me go around the world with your beautiful pictures. This morning with you will make my geography lessons much more interesting."

1. In this picture we are looking down on the largest body of water, the Pacific Ocean. What is the name of the ocean on the left side of the picture?

2. Point to the Antarctic Ocean. In what direction would you travel to reach the Arctic Ocean? Point to it.

3. Point to a part of Asia and to Japan.

4. What is the name of the large block of land at the south? What two kinds of land make up most of this continent?

Some Things to Do

1. Below are the names of four continents and two bodies of water. You will want to learn to spell their names so that you will be able to use them in your study of geography.

Africa	Mediterranean Sea
Europe	Indian Ocean
Asia	Australia

2. Choose one of the pictures of the globe in this chapter and write about it. Be sure to name the land and water bodies. Tell what kind of land the colors show.

3. Find a story to read to the class about the animals in Africa, or in Australia, or in India.

4. Use the globe to help you trace possible travel routes from North America to Africa, Europe, Asia, and Australia.

A Short Quiz

Copy the sentences below.
Fill the blank lines with the names of the main directions.

1. As we look toward the north, our backs are toward the ——.
2. As we face north, —— is to our right and —— is to our left.

A South Sea Islander is starting on a journey in his out-rigger canoe. The island in the picture is Presque Island, one of the Solomon Islands.

Galloway

Keystone View Co.

Chapter 5

Sam Goes Home

The Compass

The next morning Sam starts home. He says good-bye to his father, to Mr. Bauer, and to the other people at the weather station. Sam and Mr. Johnson soon are seated in the plane.

Sam presses his face close to the window as he flies over the ice cap again. He soon sees the green grass of southern Greenland. He also sees the little houses of the Eskimos who live along the shore.

"When I get home," says Sam, "I am going to get a book that tells me all about these Greenland people. They must be even more interesting than the penguins and seals of Antarctica."

Mr. Johnson smiles. "What is the most interesting thing you have learned in Greenland?"

"That is a hard question to answer," replies Sam. "I saw and heard about so many things. But I believe the ice caps are the most interesting. So much ice! Whole mountains of ice! Just think of it, I could walk for days and days and see only the white ice cap and the blue sky. But the most interesting thing about ice caps is that there are two of them very much alike, but a long way apart. That seems so strange."

"Well," says Mr. Johnson, "I see you are beginning to study geography. As you learn more about this globe on which we live, you will find parts of the world that are much alike but far apart. Mr. Bauer has made some maps to show that. You did not see these maps at the weather station, but you will see them in your geography book."

"I shall look for them," says Sam.

"Look! Mr. Johnson, look at that big iceberg!"

"Yes, that is a big one," says Mr. Johnson. "You know that berg is a piece of the Greenland Ice Cap which broke off and floated away. Sometimes we see a polar bear going south on an iceberg."

"Going south, going south!" hums Sam, as the plane speeds on.

"Mr. Johnson," says Sam, "I wonder how a pilot finds the way where he sees nothing but water. Flying over the ocean is not at all like driving a car along a road, is it?"

"No, indeed," says Mr. Johnson, "there are no signposts on this road and no policemen. But a pilot has other helps, you know—maps, the compass, the radio beam, and radar. The pilot of this plane has a very fine compass."

"I hope he will show it to us," says Sam.

"He will show it to us when we reach the Labrador airport," replies Mr. Johnson.

Sam is quiet for a while, then he says, "Mr. Johnson, isn't it strange that every compass in the world does the same thing? My scout compass, the pilot's compass, every other compass has a needle that turns and helps us find our way."

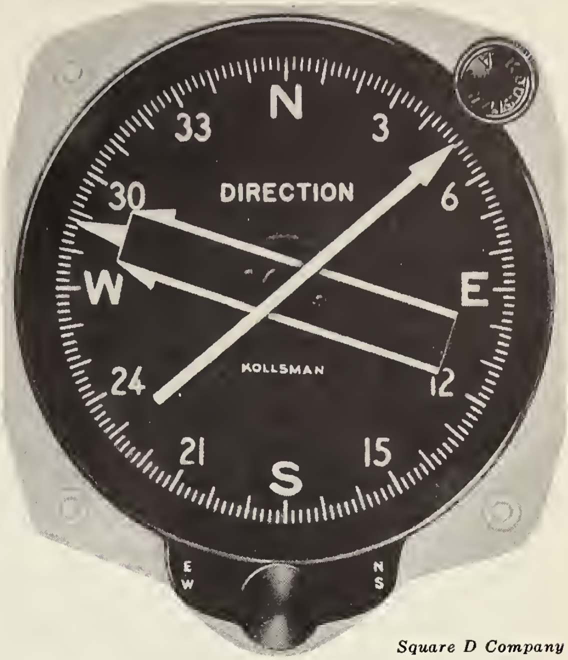
"I have often been puzzled by that, too," says Mr. Johnson. "The needle, as you know, is made of a special kind of steel. A compass needle is balanced on a metal point and turns very, very easily. Magnetism turns the needle."

"What is magnetism? I don't believe I understand magnetism very well," says Sam.

"You are like everyone else, Sam. No one knows much about magnetism."

"But we know something it does to compass needles," says Sam.

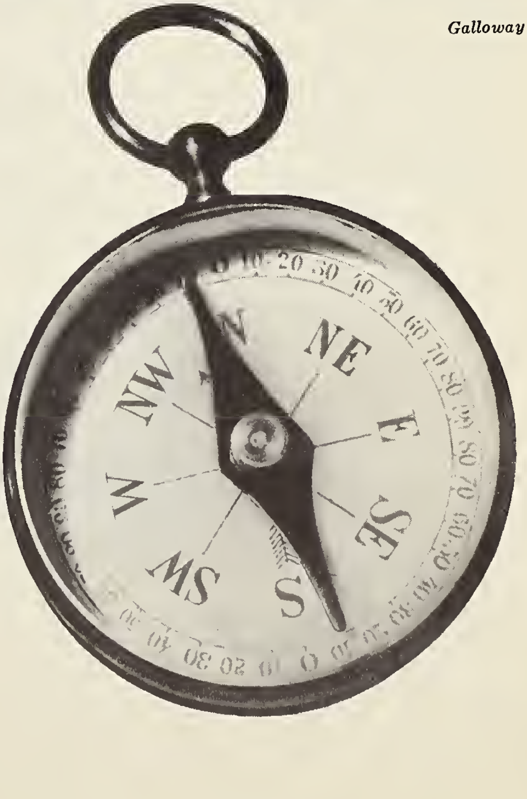
"Yes," replies Mr. Johnson. "We know that magnetism is a force that



Square D Company

A pilot needs a compass to help him keep the plane on its course. Trappers and other forest workers use compasses to guide them. Study the faces of these two compasses—the aviation compass above and the pocket compass below. How are they different? Perhaps a classmate can bring a compass to school to help you study direction.

Galloway



turns compass needles in all parts of the world. In our country magnetism keeps turning the needle of a compass so the needle points toward the north."

"That is a handy way to learn directions, isn't it?" says Sam.

"Yes," replies Mr. Johnson. "I hold a compass in my hand. We know that the needle points north. I turn the face of the compass until the needle points to the letter N. The letter N now shows me where north is. When the needle points to the letter N, the letter E on the face of the compass tells where east is. The letter W tells where west is. The letter S tells where south is."

"And the direction halfway between north and east is northeast," says Sam.

"You have it, Sam. That is fine," says Mr. Johnson. "The captain of a ship guides his ship by the compass. Ships carry very fine, large compasses.

"Persons traveling through forests often carry a small compass to show them the directions and to keep from getting lost. The compass has saved many lives."

1. Draw a circle on a piece of paper. Make the face of a compass in the circle by writing in the letters N, S, E, and W.

Halfway between the N and the E, write the letters NE. For what direction do they stand?

Fill in the other three halfway directions and tell for what the letters stand.

2. Discuss with your classmates the ways in which a compass could help you.

Day and Night

What is day? What is night? When you are in school the sun is shining on your house and on your school. When you are in bed tonight the sun will be shining on another part of the earth. This is because the earth is turning all the time. The earth turns completely around once in every twenty-four hours.

We say the earth rotates, which means turns around. You must imagine that the earth has an axis around which it turns or rotates. This turning, or rotation, of the earth around its axis makes day and night as the parts of the earth turn so that the sun shines on them or does not shine on them.

One end of the earth's axis is called the North Pole. The other end is called the South Pole.

The South Pole is not far from the center of the Antarctic Ice Cap. Men have been there and marked the place with a pile of stones.

The North Pole is in the Arctic Ocean not far from Greenland. Explorers reached the North Pole many years before an expedition went to the South Pole.

1. Here is one way to find out about day and night. Take an apple or an orange and a small, straight piece of wood about 6 inches long. Shave the wood to a smooth, round stick.

Push the stick through the middle of the apple or orange at the stem.

Hold a flashlight in one hand. Hold the apple or orange by the end of the stick in the other hand. Do not move the fruit while you turn the flashlight on it.

A part of the fruit is now in the light of the flashlight, and a part of it is not in the light of the flashlight. It is that way with our round earth. One part is turned toward the sun and has light. We call that day. The other side is turned away from the sun and is in darkness. We call that night.

Now tie a string to one end of the stick and lift the fruit by the string.

Twist the string to make the fruit turn around and around. This makes the light part of the fruit go where the dark part was. The earth turns around as the fruit does.

2. Point out the North Pole and the South Pole on a globe.

North, South, East, West

The North Pole and the South Pole are imaginary, but they are useful to us. We use them to help us find our way as we travel from place to place. If we are going toward the North Pole we say that we are going north. If we are going toward the South Pole we say we are going south. We say that south is a direction. North is a direction.

A shadow will help you to find north. When the sun shines in a window or in a door the sunlight makes a shadow on the floor. The edge of the shadow that is made by the side of the window or door is a straight line. Exactly at noon that shadow line runs north and south. At noon, here in the United States, the sun is directly south of us.

We say that north is a direction. South is a direction. There are two more main directions, east and west. Now we have the four main directions, North, South, East, West. In every part of the world, there are these four main directions.

1. To find the directions east and west, stand with your face to the north. Raise both arms as high as your shoulders. Point straight away from each shoulder. Your right hand points in the direction called east. Your left hand points west.

2. In what direction do you look as you look out of the front door of your schoolhouse?

3. Do you know what direction your home is from your schoolhouse?

The Hemispheres

A baseball is a sphere. So is a marble with which you may play a game. The earth is a sphere, too.

Let us imagine that we can divide the earth into two equal parts. Each part would be half of a sphere. Hemi means half, so we call a half of the earth a hemisphere.

Suppose that we draw an imaginary line around the world halfway between the North Pole and the South Pole. We call this line the Equator. One half of the world is north of the Equator and one half is south of the Equator. The northern half is called the Northern Hemisphere and the southern half is called the Southern Hemisphere.

We often divide the earth into hemispheres by drawing a line from the North Pole to the South Pole, and letting the line run between Europe and America. Now we have divided the earth into Eastern Hemisphere and Western Hemisphere.

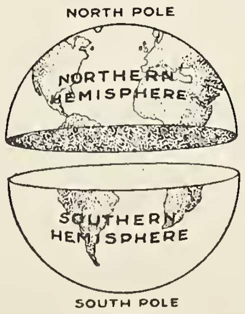
In your study of geography you often will read about the hemispheres. Indeed you will be hearing about them all the rest of your life.

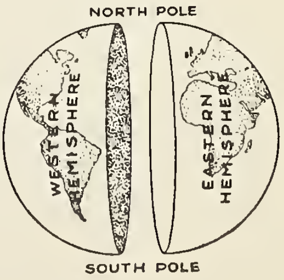
1. On a globe point to Greenland. In which hemisphere is it?

2. In which hemisphere is Antarctica?

3. Do you live in the Eastern or Western Hemisphere?

4. Learn to write the term "Equator."





Some Things to Do

1. Add the terms "North Pole" and "South Pole" to your list of geographical terms.

2. If you have a globe in your school or at home, use it in the following way to help you understand better the earth on which we live.

   a. Place the globe in a dark room. Hold a flashlight so that the center of light falls on the Equator and so that one side of the globe is completely lighted.
   b. Now turn the globe so that the light shines on the line that divides the earth into the Eastern and Western Hemispheres. Remember this line goes through the North and South Poles.
   c. What ocean do you see with the globe in this position?
   d. Turn the globe slowly toward the east, that is, to the right. The earth always rotates to the east.
   e. As you turn the globe slowly, you will see that one half of it is light and the other half is dark.
   f. Now turn the globe so that the light shines on the Americas. While it is day in most of the Western Hemisphere, it is night in most of the Eastern Hemisphere.
   g. Turn the globe slowly so that the light falls on Asia and part of Africa. While it is day in these parts, in which hemisphere is it night?
   h. What is the large body of water south of Asia and east of Africa?
   i. What is the imaginary line that divides the earth into the Northern and Southern Hemispheres? In which of these hemispheres do you live?
   j. Which of the Americas lies mostly in the Southern Hemisphere? Which continent lies entirely in the Southern Hemisphere?

A Short Quiz

Write the following sentences on a piece of paper. From the list of words and phrases below the sentences, choose the word or phrase that will make each sentence correct. Write the word or phrase in the blank.

1. There are two ____________, one in the Arctic region and the other in the Antarctic region.
2. Four helps which assist airplane pilots are ______, ______, ______, and______.
3. The force of ______ turns the needle of a compass toward north.
4. Every twenty-four hours the earth completely ______ on its ______.
5. One end of the earth's axis is the ______ and the other end is the ______.
6. North, South, East, and West are ______.
7. The______ is an imaginary line around the world halfway between the North Pole and the South Pole.
8. Half the earth is called a ______.
9. The northern half of the earth is called the ______ and the southern half of the earth is called the ______.
10. North America and South America are in the ______ Hemisphere.

List of Words

Equator
hemisphere
Southern Hemisphere
Northern Hemisphere
Western Hemisphere
directions
ice caps
compass

North Pole
South Pole
radar
radio beams
maps
axis
rotates
magnetism

Stories You Will Enjoy

Between Earth and Sky by Marion Gill MacNeil—Oxford

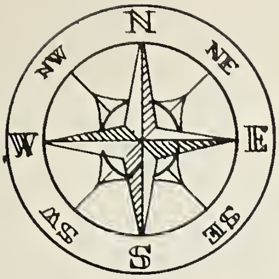
Everybody's Weather by Joseph Gaer—Lippincott

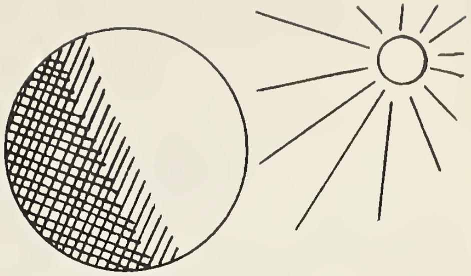
Johnny Penguin by Dorothy Bryan and Marguerite Bryan—Doubleday

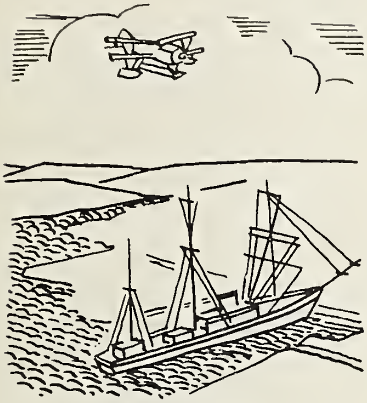
Mr. Popper's Penguins by Richard Tupper Atwater and Mrs. Florence Hasseltine Atwater (Carroll)—Little

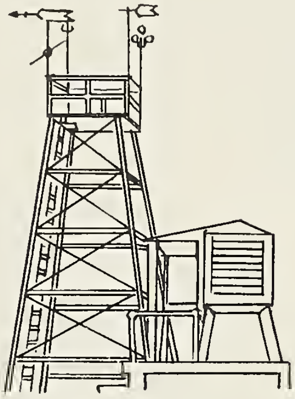
All About Oscar, The Trained Seal by Mabel E. Neikirk—Winston

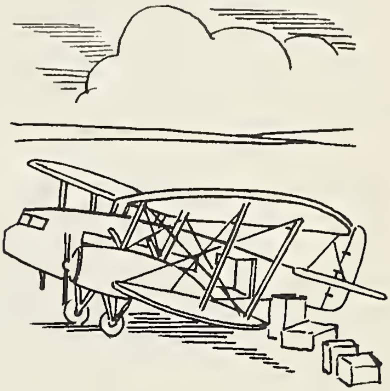
Sammy, The Baby Seal by Mabelle Halleck St. Clair—Harcourt

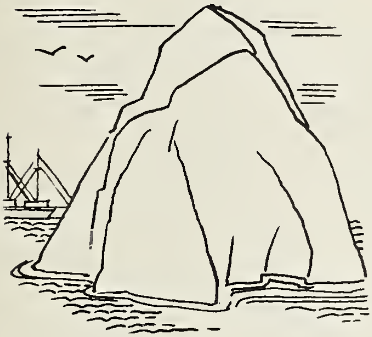


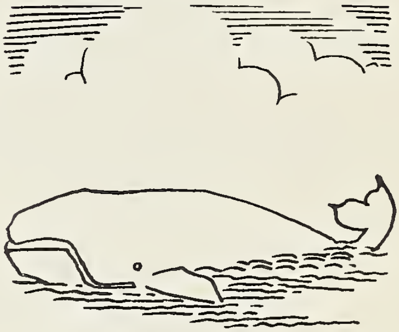












A Summary

A summary is a brief adding-up what you know. Here are drawings of nine important ideas in Unit I. The following questions will help you make a summary of ideas and facts which you can use to think geographically.

1. What directions do the compass letters stand for? How is a compass useful?

2. Large blocks of land are called ______. The earth rotates on its ______. The imaginary line around the earth is the ______. It divides the earth into northern and southern ______.

3. What causes day and night?

4. How are the two kinds of planes in the drawings important to arctic living?

5. Why is there a weather station in Greenland?

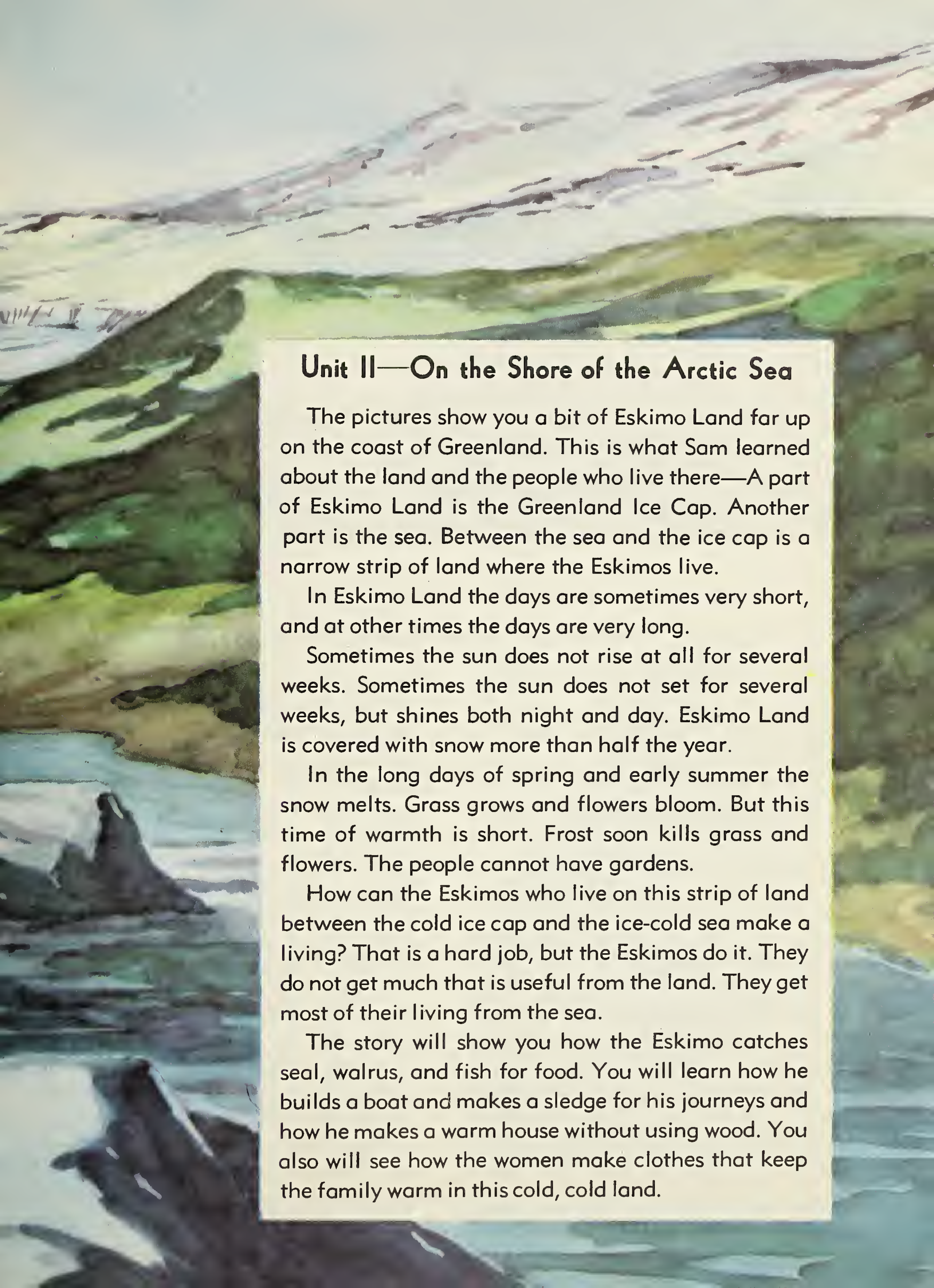
6. What are icebergs? Why are they a menace to ships?

7. On which continent do penguins live?

8. Of what use is the large sea animal to arctic people?

9. Why is Greenland more important than Antarctica? Use a globe to help you explain this question.

10. Suppose you could go on an airplane trip to either the North Pole or the South Pole. Which trip would you choose? Give as many reasons as you can for your choice.



Unit II—On the Shore of the Arctic Sea

The pictures show you a bit of Eskimo Land far up on the coast of Greenland. This is what Sam learned about the land and the people who live there—A part of Eskimo Land is the Greenland Ice Cap. Another part is the sea. Between the sea and the ice cap is a narrow strip of land where the Eskimos live.

In Eskimo Land the days are sometimes very short, and at other times the days are very long.

Sometimes the sun does not rise at all for several weeks. Sometimes the sun does not set for several weeks, but shines both night and day. Eskimo Land is covered with snow more than half the year.

In the long days of spring and early summer the snow melts. Grass grows and flowers bloom. But this time of warmth is short. Frost soon kills grass and flowers. The people cannot have gardens.

How can the Eskimos who live on this strip of land between the cold ice cap and the ice-cold sea make a living? That is a hard job, but the Eskimos do it. They do not get much that is useful from the land. They get most of their living from the sea.

The story will show you how the Eskimo catches seal, walrus, and fish for food. You will learn how he builds a boat and makes a sledge for his journeys and how he makes a warm house without using wood. You also will see how the women make clothes that keep the family warm in this cold, cold land.

Comdr. D. B. MacMillan, A.M.N.H.

Chapter 6

A Year with Ahpellah, the Eskimo

Eskimo Land

The men at the Weather Station in Greenland told Sam that Eskimos live on the strip of land between the ice cap and the sea. As soon as he was home again, Sam began to read about Eskimos. Here is what he learned about the Eskimos in Greenland.

The sea near Greenland is covered with thick ice in winter. In summer pieces of ice, both big and small, float about in the water. The sea water is always icy cold.

The strip of land beside the sea is the best place for an Eskimo house. In the short summer the snow melts, and the land is green with grass and bright with flowers, blue and red, white and yellow. It is beautiful, but it is too cold here for gardens. The Eskimo does not get much that he can use from the land.

But from the sea! Ah, the sea is rich! The Eskimo who lives by the sea gets most of his living from the sea. Many seals live in the cold waters of the sea. The Eskimos are seal hunters. They get most of their living from the seal.

The seal is a hunter, too. He hunts shrimps. He gets most of his living by catching shrimps. Shrimps are small swimming shellfish that live in the sea. You can buy a can of shrimps in almost any grocery store. They are good food for persons as well as for seals.

A very large kind of seal called walrus also lives in the Greenland sea. If the Eskimo has enough seals and walrus, he can get along very nicely, as we shall see.

In this part of Eskimo Land the days are sometimes very long and at other times the days are very short. In autumn the sun rises much later each day.

It rises at 8 o'clock, then at 9 o'clock, then at 10 o'clock, 11 o'clock and half-past 11 o'clock. Then comes a day when the sun does not rise at all. There is a morning glow in the sky. You would think the sun is coming, but it does not come. The morning glow gets darker, not lighter. In the northern part of Eskimo Land the sun does not rise for several weeks. During that period the day is a very dull time. Even at noon it is almost dark.

In summer the sun does just the other way. It sets at 9 o'clock in the evening, then at 10 o'clock, at 11 o'clock, and half-past 11 o'clock. Then the sun does not set at all. For several weeks it shines night and day.

How does the Eskimo manage to live in this kind of country, how does he get what he needs? How does he make a happy life for himself and his family?

1. Why must the Eskimos in Greenland depend on the sea for a living?

Ahpellah Prepares for the Long Winter

Ahpellah is an Eskimo who lives in a small village beside the sea at the foot of the Greenland Ice Cap. Let us follow him through a year and see how he gets the things he needs.

It is November and Ahpellah is very happy. He is happy because he is ready for winter. He has repaired the house. His wife has made new clothes for everyone in the family. Ahpellah has stored enough food to keep his family and the dogs all winter. For several months everyone has been busy catching and storing seals, fish, birds, and birds' eggs. Unless the Eskimos put away a lot of meat and fish for food in winter, they and their dogs would starve.

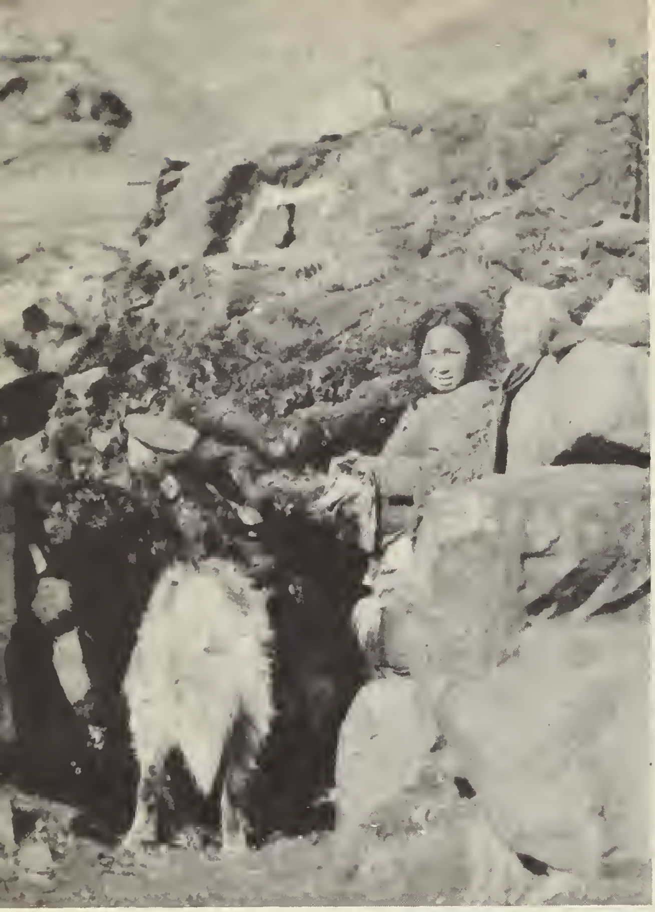
Ahpellah has a very large refrigerator in which he keeps his meat and fish. On the Greenland coast where Ahpellah lives, the earth is always frozen to a great depth. Only in summer does the earth thaw a little and then only a foot or two at the top.

So when Ahpellah wants to put away meat for winter food, he catches seal and walrus and buries the meat in holes he digs in the soft earth. He digs through the part that is not frozen and keeps on digging into the frozen earth beneath. He puts the meat into the hole in the frozen ground. That is his refrigerator. The meat soon freezes and keeps sweet in the ground. It will be good for food next winter.

Ahpellah covers the meat with stones. The stones will keep the dogs from getting the meat, and the foxes and wolves,

A huge rock cliff towers over a United States Coast Guard Cutter along the coast of Greenland.

U. S. Coast Guard



Navy MacMillan Arctic Exped.

Stones and sod are used to build the walls of the Eskimo's winter house. Why do you think Ahpellah must put a new roof on the igloo every year? Notice the husky entering through the hole near the ground.

too. He hopes the polar bear will not find this secret place. A bear can roll away any stone that a man can move. We call such a store of food a cache. Every Eskimo family has several caches.

The seal and the walrus have layers of fat, called blubber, under their skin. Blubber helps the seal and the walrus to keep warm as they swim about in the cold water. The Eskimos use blubber for food and also as fuel for their lamps. So Ahpellah has filled many bags of sealskin with blubber of seal and walrus. He stores this in caches with the meat.

Long before November Ahpellah made his house or igloo ready for winter. The walls of the igloo are made of stones which are laid one on top of another. The cracks between the stones are filled with sod. Often some of the ground or sod falls out during the summer, for no one uses an igloo in summer. Before freezing weather begins in the autumn, Ahpellah looks carefully at every inch of the wall. When he finds even a tiny crack, he fills it with sod.

"Keep cold wind out," says he, as he stuffs the last crack full.

When the walls are snug and tight, Ahpellah puts on a new roof made of pieces of sod. The ribs of whale hold the sod in place on top of the igloo. Snow will soon drift around the igloo and almost cover it. Snow helps to keep the family warm inside the little house.

There is only one window, and it is covered with seal gut. This is something like white tissue paper that has been oiled. Light can shine through the seal gut, but no one can see through it. So the Eskimos cut a tiny hole in the seal gut. By putting one eye close to the hole, a person can see what is going on outside. At the present time many Eskimos get glass for their windows from the men who come to trade.

To get out of the igloo the people go through a round hole near the floor or in the floor. The hole leads to a tunnel in the ground or in the snow. The people crawl on hands and knees through the tunnel. Cold air cannot enter through the tunnel.

The inside walls of the igloo are lined with sealskins. This helps to make the room warm. There is a wide bench of stones and snow along one side of the room. The bench and the floor are covered with dry grass and with many layers of sealskin. This keeps the snow underneath from melting. People can sit on the benches by day. At night they sleep there. The igloo is not a big house, but Ahpellah and his family manage to keep warm and have a happy time even in the long, cold winter.

1. Name three things the Eskimos have prepared for winter.
2. How does blubber help the seal and the walrus? How does blubber help the Eskimo?
3. Explain in your own words what a cache is.

Winter in the Little House

A small lamp lights the igloo. The lamp is just a big saucer carved out of soapstone. Soapstone is a soft rock that is found in Eskimo Land. There is oil in the saucer and a little wick of dried moss rests in the oil. The end of the wick hangs over the edge of the lamp.

Ahpellah's wife strikes two stones together. This makes a spark. The spark lights the wick of dried moss. Oil comes up through the wick and burns with a hot flame about two inches high.

A cooking pot of soapstone hangs over the flame. When anyone wants to eat some cooked meat, he can reach into the pot and help himself. The Eskimos also eat much raw meat and raw fish. Above the pot and near the top of the igloo are some poles where clothes and boots are dried.

The lamp is very important to the Eskimo family. Without it there would be no light and no warmth in the long winter night—night that lasts for days and weeks. It is not pleasant to be in an igloo all day with no fire, no lamp, just dark—dark and cold, freezing cold. If an Eskimo wants to tell you of something very bad indeed, he will say, "It is as bad as a woman without a lamp." Sometimes Eskimos will go hungry to save blubber for their lamp.

As Mother sits by the lamp she puts on strips of blubber of walrus or seal, or of whale if she can get it. She pats the wick with a little stick to keep it burning nicely and to keep the lamp from smoking. If an Eskimo house even smells of smoke, people say, "That woman is not a good housekeeper."

Mother spends many hours working on sealskin. She folds the skin, lays it on the floor and tramps upon it. She works it with her hands. Sometimes she chews the sealskin to make it softer. Then she sews. Every Eskimo housewife is expected to have new clothes of skin and fur ready for the family when winter begins. It is the style in Eskimo Land to appear in a complete new suit at that time. So the women make pants, coats, mittens, and boots. They make blankets and sleeping bags. They even make dishes

A knife, an awl for making holes, a bone needle for netting snowshoes, and sinew thread—these are the articles in an Eskimo woman's sewing kit.

U. of Pa. Museum

and buckets of sealskin. Mother makes blankets of rabbitskin for the baby and shirts of sealskin and birdskin.

The Eskimo woman uses sinews for thread. Sinew makes stitches that are water-tight. Sinew swells and fills the hole made by the needle. Our thread does not do that. Ahpellah's wife does not want to sew with our thread.

Mother also helps her daughter to make a coat. Eskimo work clothes are usually made of sealskin. But a girl in Ahpellah's community likes to have a "best" coat. This coat is made of the skins of nine blue foxes with one white skin on the breast.

Mother teaches her daughter how to sew by helping her to make a "best" coat for herself. It is very important indeed for every Eskimo girl to be able to sew well. All her life she will have much of it to do, making the things to keep her family warm. The Eskimo woman has a very busy life.

Sometimes Ahpellah sits beside the lamp making new harpoon points and harpoon lines. Sometimes he makes harness of leather for the dogs, or carves ivory to make an ornament.

As the family works by the light of the little lamp, someone may tap the small drum made of sealskin. Perhaps Ahpellah tells a story about how the world began. Eskimo stories are not written or printed in books. Eskimos keep these things in their memory. Older people tell the stories to the younger ones. In this way the stories keep on being told in families for hundreds of years.

Even in the coldest weather the children play out-of-doors. You may think it strange, but winter is the season the Eskimos like best. Yes, it is cold, but the Eskimo clothes are very warm. In the coldest weather they wear two suits—the under suit and the outer suit. The under suit is made with the fur inside. The warm, soft fur is next to the body. The outer clothes have the fur outside. There is a warm hood that can be pulled over the head. Everyone wears mittens of fur and boots of sealskin.

With such clothes the children are kept warm even when playing out-of-doors for hours at a time. They play hide-and-seek, tag, and other running games. They coast down icy hills on flat pieces of whale skin or sleds of wood or bone. The children have round faces and rosy cheeks. They feel so well that they run and shout for joy. The Eskimos are happy people. They have a lot of fun.

Late in December the glow gets a little brighter at noon and a little longer each day. The people know that the sun soon will be coming back. They have a celebration in honor of this important event. When they are sure the sun will rise the next day, all the people of the settlement dress in their best clothes. They go to the top of the highest hill. There they wait to catch the first sight of the sun's rays. They clap their hands, they shout and laugh. They sing the sun song. Welcoming the sun is one of their great festivals, like our Christmas or Thanksgiving.

This first peep of the sun lasts for only a few minutes—such a short day! But the Eskimos know that the next day the sun will shine a little longer, and the next, and the next. At last the sun will shine all night.

1. What two things does the lamp provide for the igloo?
2. What work does Natik's mother do during the winter?
3. Be ready to tell about the festival the Eskimos have to welcome the sun.

The Dog Team and the Visit

Dogs are very important to Eskimos. Dogs pull the sledges over the snow in winter. They help their masters with the hunting. Eskimo dogs are strong, healthy, and quick to do what their masters tell them.

Without his dogs the Eskimo would be almost helpless in the long winter. Without them he cannot go far enough from home to get food for the family. Ten or twelve dogs can go thirty or forty miles in a day while pulling a sledge with a load on it.

In winter, streams and lakes are covered with hard ice and the land is covered with snow. Rough places in the earth are covered with snow. Then the sledges can go almost everywhere on land. The sea is often frozen and the dog sledge can travel for miles over the frozen sea. This is the season for traveling in Eskimo Land.

Every few days during the winter, Ahpellah and his son, Natik, with their dog teams and sledges go several miles to the caches to get food. They roll the stones away from a cache of walrus meat, or seal meat, or fish. They bring the sledges home loaded with food.

Ahpellah sits on his sledge or runs beside it. His dogs are spread out in front of him like a fan. As he swings his long whip it cracks with a sound like a pistol shot. By cracking the whip he tells the dogs to turn left, to turn right, to go straight ahead, to lie down. The dogs do as they are told. They enjoy their work, and the Eskimo loves his dogs.

When Natik was a little fellow, his father gave him a pup for a pet. Natik tied a string of sealskin around the pup's neck and led him about. Natik taught the pup to pull a toy sledge. When the pup was full-grown Ahpellah made a harness for him. Natik taught the dog to pull a large sledge. Then Natik sat on the sledge and learned to drive his dog. After a while Natik drove two dogs, then four dogs. He spent hours and hours teaching the dogs to go where he wanted them to go. At ten years of age Natik was a good dog-team driver. That is something that every Eskimo boy must learn to do well. His sister must learn to sew, and the boy must learn to drive dogs and to get food.

Eskimo dogs have strong bodies and thick coats. They can curl up and sleep in the snow.

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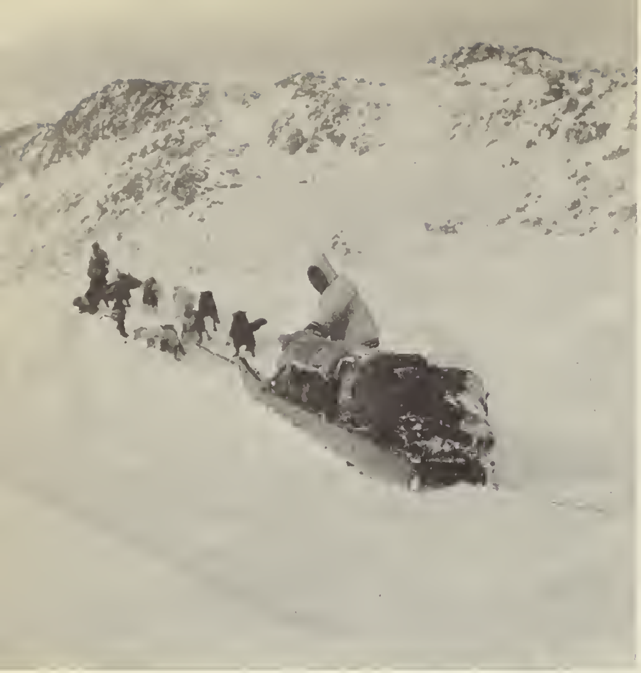


National Museum of Canada

Eskimos hitch their dogs to the sledge in the way this picture shows.

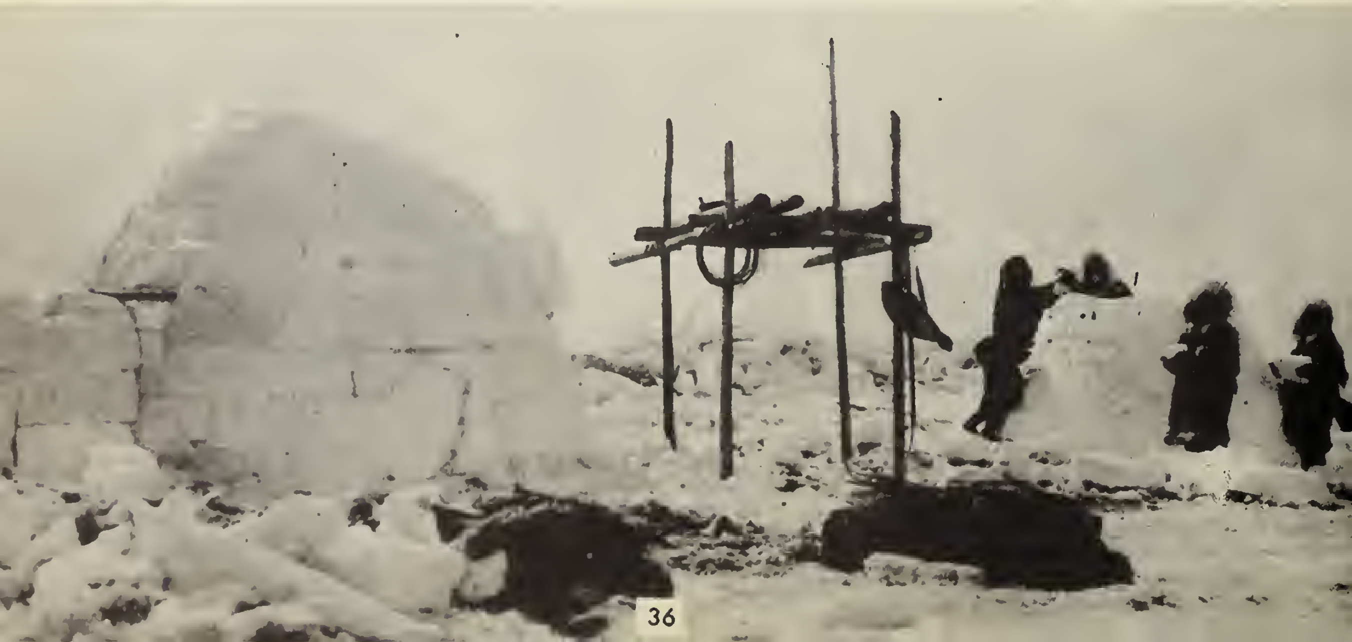
There is a beautiful full moon in January. The moon shining on the snow-covered land makes everything almost as bright as it is by sunlight. Eskimos like the bright moonlight of winter. They also like to visit their friends. Sometimes they go a hundred miles, or even much farther to visit friends. Winter is their vacation time.

Ahpellah's family plans to visit some friends who live far away. Ahpellah and Natik get the sledges and dogs ready. They pile the sledges high with blankets, clothes, and food. They cover the load with sealskin and tie it fast. The baby, wrapped in a blanket of rabbit-skin, rides on top of the load. When all is ready, Ahpellah cracks his whip and away they go for a winter holiday. Some of the family ride on the sledge. Some run beside it.

At night the family camps along the way. They build a snow house in an hour and spend the night in it. Ahpellah shows Natik how to find a good place to make a snow house. The snow must be hard enough to hold you up, but soft enough to show your foot track. When you push your whip handle down into the snow, it should not meet hard places. Snow like that can be cut with a big knife. The pieces will come out in thick blocks. It takes about sixty blocks to make a snow house that is just 8 feet wide. By the next sleeping time, the family has come to the igloo of their friends. They visit there for a week. The

Notice the large blocks of snow in the igloo. Snow houses are used on camping trips.

Galloway



families enjoy exchanging the news. They laugh and tell stories. Then the visitors return to their own home. They sleep in the snow house again on the way home.

1. Why is winter the season for traveling in Eskimo Land?
2. If you think a pup is the best kind of pet for Natik, give your reasons.
3. Pretend you are Natik and tell your classmates how you would train a pup to be a work dog.

Hunting Seals in Winter

As soon as they get home, Natik goes to the cache to bring a load of walrus meat. But there is no walrus meat! Bears have found the cache. They have rolled away the stones and eaten all the meat. Only a little seal meat is left in one of the other caches. This is very sad indeed. Every person needs two pounds of meat a day. Each dog needs two pounds of meat a day, also.

Ahpellah has to hunt seals right away, even in midwinter. At this time of the year there are no seals to be seen. Seals live under the ice in winter.

Galloway

An Eskimo hunter is ready to harpoon another seal through a hole in the snow.

The seal breathes air as people do. But a seal can stay under water for several hours without coming up for breath. When the sea freezes over, the seal has two jobs. He must catch shrimps for food and he must keep holes open in the ice where he can stick his nose up to get air. How does the seal keep open these holes in the ice?

A family—even the puppies—is enjoying dinner in their snow house.

Galloway

Fur seal pups may grow to be very large animals. Some full-grown seals weigh as much as 400 pounds. Although seals are sea animals, the babies must be taught to swim.

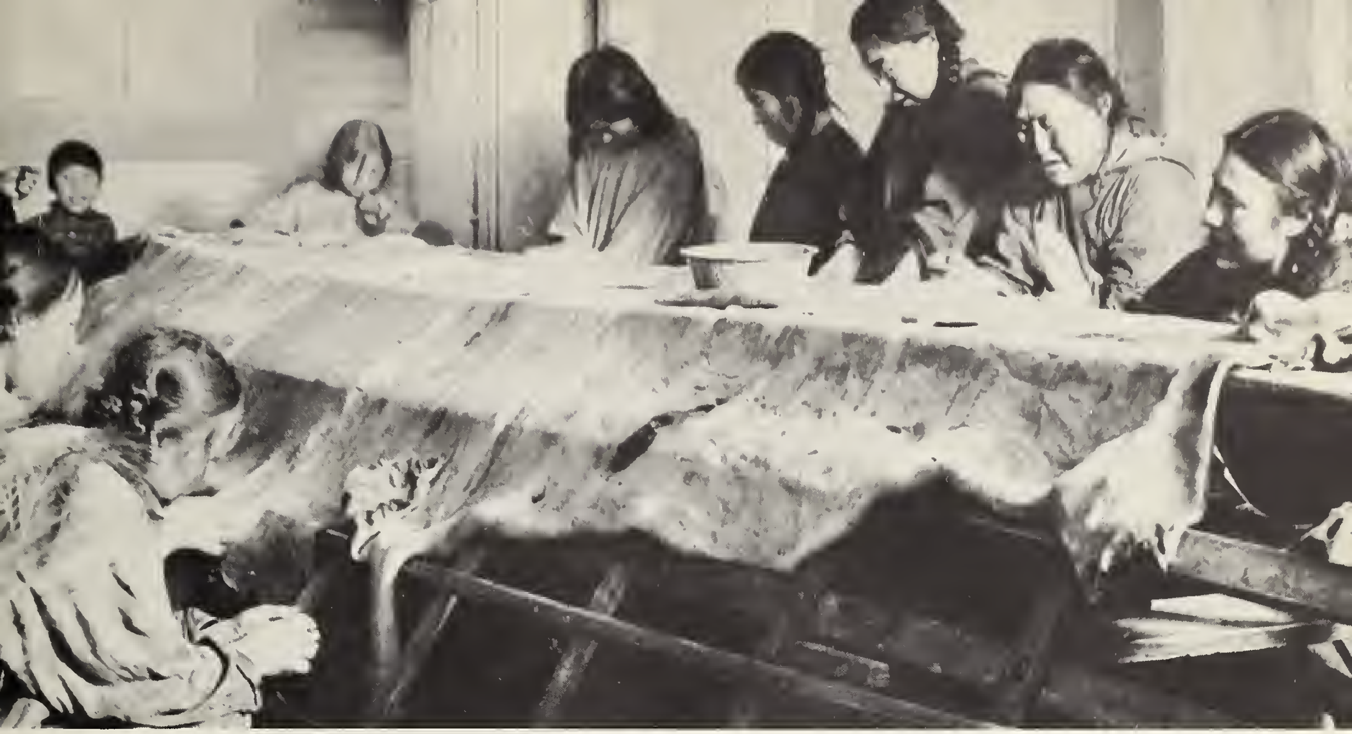
The seal keeps his breathing holes open by gnawing the ice with his sharp teeth. There is usually a little snow on the ice over the breathing holes and a small hole in the snow. Sometimes these holes in the snow are no larger than a penny. It is not easy for a man to see the small holes. But a dog can find them by smell.

Ahpellah and Natik take their best dog and go out on the frozen sea to hunt for seals. They walk for an hour or two. Suddenly the dog stops. He stands very still, looking at a little hole in the snow. The dog wags his tail. Ahpellah places a piece of bone in the snow so that one end sticks down in the seal's breathing hole and the other end sticks up above the snow. When the bone moves, it will be because the seal's nose has touched it from below.

Ahpellah cuts a block of snow and sits on it. He has his harpoon in hand. He sits very still, watching the bone. Natik sits still, too. The Eskimo name for this kind of hunting is "Moupok," which means, "he waits." Sometimes an Eskimo sits as still as a wooden man for twenty hours at a time. There he sits, in the cold, cold wind, waiting for a seal to come.

Ahpellah and Natik sit for five hours. They see the bone move. A seal has come at last to this breathing hole. With a quick thrust, Ahpellah harpoons the seal. The ivory head of the harpoon comes loose from the handle as it was meant to do. A stout line of sealskin is fastened to the head of the harpoon. Ahpellah and Natik pull the seal in on the line as though the seal were a big fish. Then they drag the seal home across the snow-covered ice.

How glad Mother is to have food for her family and dogs, and blubber for the lamp! She is careful to save the skin of every seal. A seal gives meat enough for the family and dogs for only three days.



Signal Corps

Eskimo women stretch skin over a frame of wooden ribs to make a umiak. This is the family boat and it is large enough to hold the entire family and all the household belongings.

Ahpellah and Natik hunt for seals at breathing holes for several weeks.

1. Why do you think an Eskimo needs two pounds of meat every day?
2. What weapon is used to hunt seals?
3. Name the parts of the seal that provide food, fuel, and clothing for the Eskimo.
4. Do you think the seal or the dog is more important to the Eskimo? Make a list of your reasons.

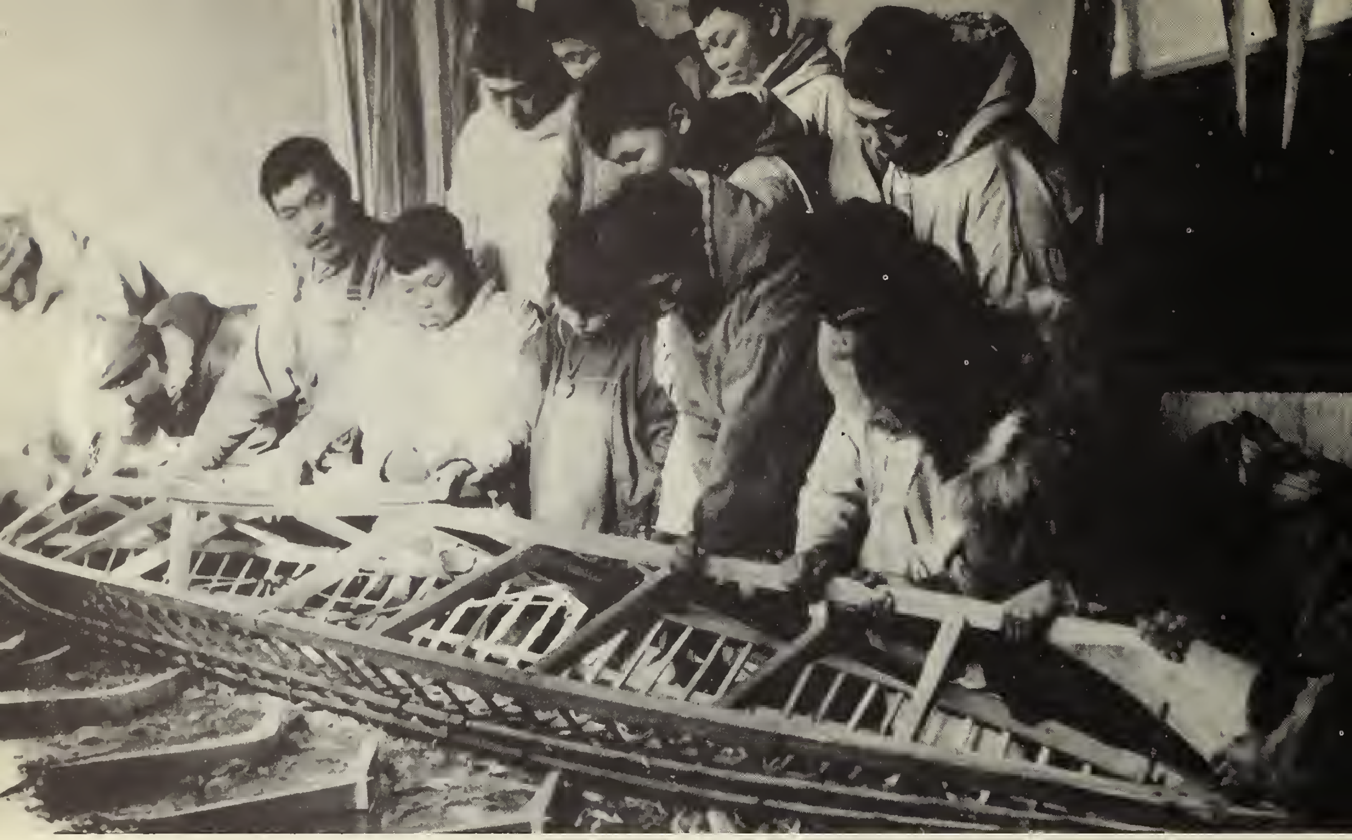
Summer in Eskimo Land

When April comes the sun shines brightly. The days are now longer than the nights, and they are getting longer rapidly. The snow begins to melt and patches of bare ground can be seen. The men of the Eskimo village are busy getting their boats ready to use. Some build new ones. The season for using boats is coming. In summer the dogs are of little help, for the sledge cannot be used. The snow has gone and the ground is uneven and rough. There is mud in many places, and there are no roads.

The sledges no longer can go out on the sea. The ice near the shore has melted a little. Cracks begin to appear in the ice-covered sea. The cracks get larger. In some places there is only water, no ice. Sledges are put away and the dogs have a vacation.

Ahpellah and Natik get out the sealskin cover for the umiak. The umiak is the boat the women use. It is large enough to carry several persons. The kayak or man's hunting boat carries only one person.

In May the sun is up before the people are awake. When they go to sleep at night the sun is still shining. It melts the snow on top of the igloo. The water drips through. The igloo becomes unpleasant. Then the family puts up its tent of sealskin and lives in it for the rest of the summer. The season of wet feet and mud and mosquitoes has come. Mosquitoes bite. Oh, how many mosquitoes there are in Eskimo Land! These



Dept. of the Interior (above), Capt. Bartlett from Gendreau (facing page)

Boys get instruction in the skill of building a kayak. The kayak is a fishing boat, a light canoe. It is often as long as 20 feet, but never more than 20 inches wide. The round opening in the middle has a kind of cuff which the fisherman can button around him to make the boat water-tight. An Eskimo boy is taught to handle the kayak when he is ten years old.

are some of the reasons why the Eskimos like winter best.

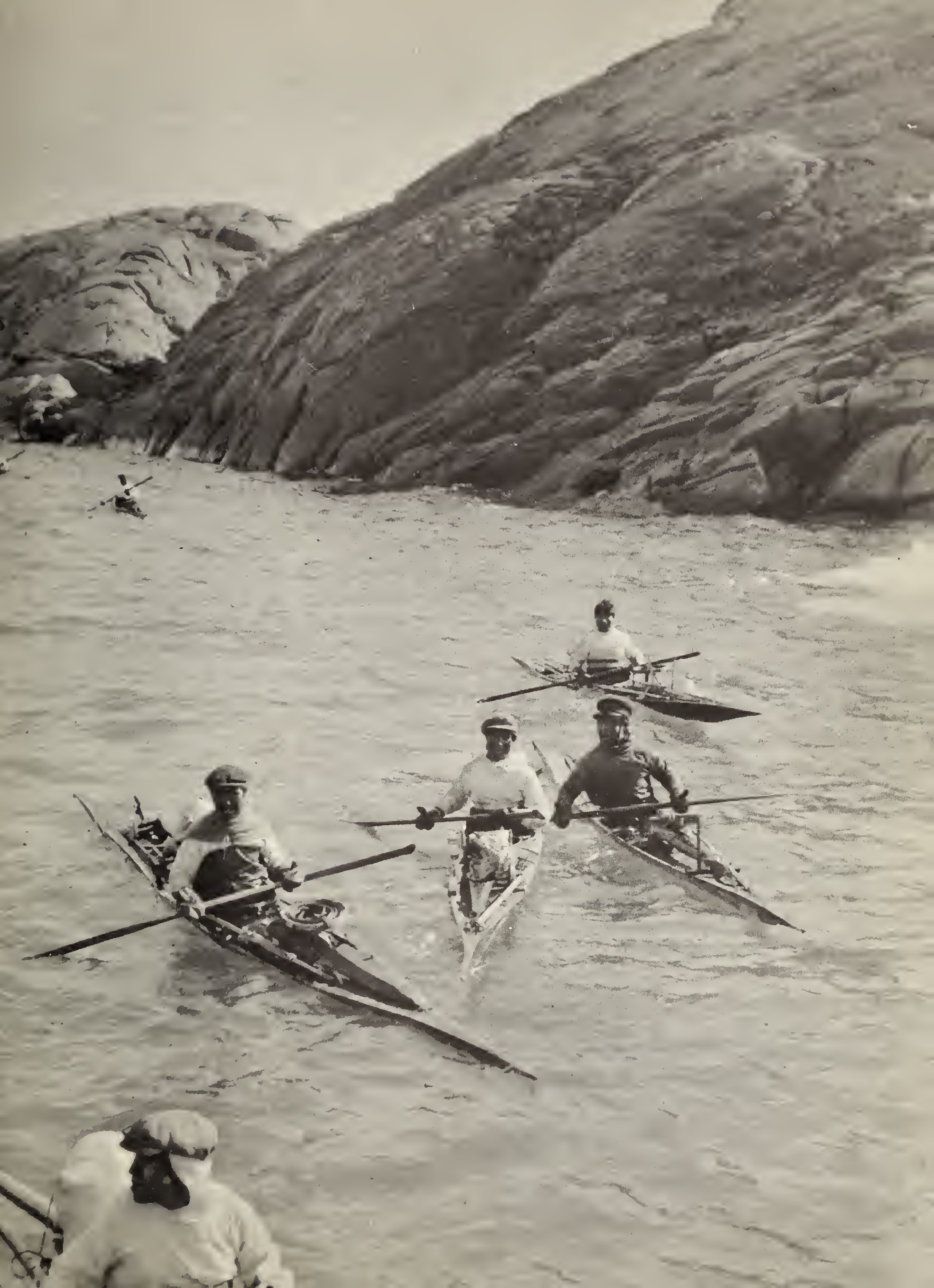
The long hours of sunshine make the grass grow quickly. Flowers bloom. Bees hum. Butterflies fly about. Now wild geese and wild ducks and other birds come from far-away places to lay their eggs and rear their young in Eskimo Land. The people like to eat these birds and their eggs, and to put them away for winter food.

This is the time for catching birds and for catching fish. Each family takes its tent and goes to the place it likes best. Some catch fish with nets, some with spears. Some catch rabbits with snares. Some trap foxes. The men hunt for seals. This is the time of the year to catch the many seals needed for food and clothes.

A seal that has spent the winter under the ice wants to get out now. He bites at his breathing hole to make it bigger. When it is big enough to let his body pass through, he comes out on the ice where he can take naps in the warm sun.

Bears and men have a good chance to catch the seal now. He seems to know something about this danger. So he takes only very, very short naps. Mr. Stefansson, an explorer who has spent years with the Eskimos, has watched seals very closely. He says the nap a seal takes lasts about thirty-five seconds. Then the seal looks all around for about five seconds to see if danger is near. Then he takes another short nap.

The eyes of a seal are not good for seeing through the air. But the polar



Comdr. D. B. MacMillan, A. M. N. H.

Eskimo woman gathers eggs on Eider Duck Island, Greenland. Her clothing shows this is the warm season even though there are ice and snow.

bear has very good eyes. The bear can see a seal a long way off. But the seal cannot see the bear a long way off. The bear walks across the ice toward the seal. When the bear comes so near that the seal might see him, the bear lies down on the ice. The white coat of the bear looks so much like snow that the seal does not know that a bear is near. When the seal is taking a nap, the bear slides forward on his stomach. He pushes himself with his hind feet. When the seal wakes, the bear lies very still while the seal looks around. The bear even puts his white paw over his black nose. The seal takes another nap. The bear slides nearer. At last the bear comes near enough to make a rush and grab the seal!

Eskimos try to trick the seals in much the same way as bears do. They sometimes put sealskin on themselves, hoping the seal will think another seal is coming. The man will then do just as the bear did. When close enough, the man can harpoon the seal.

Ahpellah has a rifle and a piece of heavy, white cotton cloth which he bought from a trader who came from Europe to trade with Eskimos. He puts the cotton cloth on the front of a little sled. He lies behind the cloth and pushes the sled toward the seal. When he is close enough, he shoots the seal with the rifle.

For many days in early summer, Ahpellah and Natik and their neighbors are busy hunting seals. They drag the seals ashore and skin them. They bury the meat in the frozen ground to be used next winter for food and fuel.

One day Ahpellah gets into his kayak to hunt walrus. This is dangerous work. Some walruses are larger than a horse. One walrus gives the Eskimos a lot of meat.

Ahpellah paddles his kayak out to sea. When he sees a walrus swimming in the water, he gets it with a quick thrust of his harpoon. He does not shoot the walrus because it will sink if it is shot in the water. The harpoon has a line fastened to it. Ahpellah brings the walrus in with the line.

While the men hunt seals and walruses, the women are gathering bird eggs and storing them in the frozen earth. They also catch fat birds and put them in the cache to freeze. The birds will be good to serve to visitors the next winter.

One kind of bird flies close to the ground. The girls hide behind rocks and catch these birds with a net. Ahpellah's daughter caught a hundred birds in one day.

Later in the summer and early in the autumn, the men get into the umiaks and go to catch fish. Some Eskimo families put away thousands of fish to freeze. This is food for both family and dogs.

Winter comes. The Eskimo family goes back to its igloo. Again the caches are full of food and blubber. All the family have new fur clothes. They are ready for a pleasant winter in the warm, little house that looks so much like a pile of snow.

Ahpellah and the other Eskimos of the far North get almost all of their living from the ice-cold sea and the bit of land along the shore. They build their houses. They make their clothes. They get their own food. Sometimes they sell enough skins to buy a rifle and cartridges and a few other things.

On top of the ice cap is the camp of the weather men. The weather men on the ice cap are like the wild geese and ducks of Eskimo Land. They fly in from a warmer country, and they go back to it. These men bring with them everything that they have. Everything they have comes in ships and planes from faraway places. But the Eskimos must depend upon themselves for most of the things they need.

1. Why do the people live in tents during the summer?

2. Why does the Eskimo like winter better than summer?

3. Which season of the year do you like best? Give reasons for your choice.

Some Things to Do

1. Here are twelve words from Chapter 6 which you will want to remember. Talk with your classmates about them. Use them as often as you can when you talk or write about Eskimos.

cache
blubber
soapstone
sinew
igloo
sledge
harpoon
sealskin
umiak
kayak
walrus
sod

2. Pretend you are Natik, the Eskimo boy. Write a letter to someone in your class telling how your father hunts seals in summer and in winter.

3. Ask your teacher to help plan a picture poster about the Eskimos. Make a list of the things which you would like to draw for the poster.

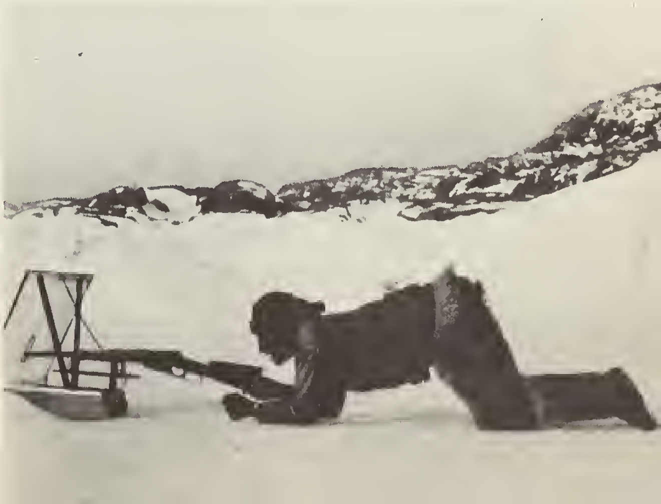
A Short Quiz

Some of these sentences about the Eskimos are true. Some of them are not true. In a notebook or on a sheet of paper, copy the sentences that are true.

1. For several weeks in summer the sun shines both night and day in the northern part of Eskimo Land.
2. The Eskimo gets most of his living from the land.
3. Seal and walrus meat, fish, birds, and eggs are stored for winter food.
4. Animal oil is used for fuel.
5. Sledges are used both in summer and in winter.
6. Much fishing and hunting are done in summer and autumn.
7. Ahpellah shoots the walrus from his kayak.
8. Eskimos depend upon themselves for most of the things they need.
9. In winter the sun in Eskimo Land sets at 9 o'clock in the evening.
10. The inside walls of the igloo are lined with sealskins.

A hunter is waiting to shoot a seal that is napping. The white shield on the sledge hides the hunter from the seal.

Comdr. D. B. MacMillan, A. M. N. H.



Dr. Fleming, Bishop of the Arctic

Chapter 7

Airplanes in Eskimo Land

Other Shore Eskimos

In the story of Ahpellah we have read about the life of one group of Eskimos who live at the edge of the ice cap and get their living from the sea. We may call them shore Eskimos. There are many other groups of shore Eskimos.

Shore Eskimos live on the western coast of Greenland and on the eastern coast of Greenland. There are Eskimos along the northern shores of North America. You can find their little villages all the way from Labrador to the western tip of North America near Asia. There are some Eskimos on the Arctic shore of Asia near Bering Strait. Bering Strait is the name of the narrow body of water that separates North America from Asia.

The Eskimos speak the same language from one end of this long coast land to the other. They have the same kind of dogs. The same kind of kayak is found everywhere except in one small group.

There are not more than forty thousand Eskimos. That many people live on one long street in some of our large cities. There are dozens and dozens of towns in the United States where more than forty thousand people live.

Usually only a few families live in an Eskimo village. Some villages are farther apart than the distance you could walk in a day. There are places in some of the large islands north of North America where you could walk for many days and find no people at all.

The Eskimo shows great skill in making the things he needs from what he can find and from what he can catch. Nothing shows this better than the many uses Eskimos make of the seal.

The Eskimos make their kayak, or hunting boat, mostly from the seal. No other people in all the world have made a small boat as good as the kayak.

The Eskimo makes a warm house of what he can find. If there is no wood, he uses stones, sod, whale ribs, sealskin, caribou skin, or snow. If he can get logs, he builds a log house and fills the cracks with moss.

Trees do not grow on the shore of the Arctic Sea, but some Eskimos get logs. Rivers help them to do this.

The Mackenzie River and the Yukon River flow through forests. Every year these rivers carry down to the sea thousands of logs and branches of trees that have fallen into the water. This driftwood floats along the coast. The driftwood is blown one way by one wind, and another way by another wind. Driftwood is scattered far and wide along many parts of the Eskimo shores. This is the only supply of wood the Eskimo has.

Eskimo houses are small. But even if his house is tiny and his work hard, the Eskimo likes his home and he likes his way of life. The Eskimo community is a happy place. Mr. Stefansson, the explorer who has lived with these people, says that an Eskimo laughs more in a month than an American does in a year. Many travelers say that Eskimos do not quarrel among themselves. They treat their children kindly. If there are children without homes, other families take them in.

When an Eskimo comes to our country, he wants, more than anything else, to go back to his homeland.

1. Use a globe or a flat map to locate villages of shore Eskimos.
    a. Point to the west and to the east coasts of Greenland.
    b. Trace with your finger the northern shores of North America from Labrador to the Bering Strait.
    c. Point to a place in Asia where there are shore Eskimos.

Trading and the Airplane

At the present time, nearly all Eskimos trade with men from the United States and Europe. Some trade more than others. Some Eskimos live in places where it is hard for traders to go. Eskimos like to buy sugar, tea, and white flour. Some buy phonographs, radios, and stoves. If they have enough furs to sell, they can buy things they like and need.

First of all they must buy rifles and cartridges and fishhooks. All Eskimos

When Eskimos on the seashore want fish for dinner they cut a hole in the ice and use a hook and line. Small children are good fishermen.

Galloway

Capt. Bartlett from Gendreau

Eskimo family enjoys a warm day in front of their sealskin igloo. A tent, usually made of skin, is used during the warm season when the sod house is softened by the sun.

now use the rifle for some of their hunting. But they cannot use it for getting the walrus when it is in the water, or for the seal at the breathing hole. That is because the bodies of these animals sink if they are shot in the water. Even the Eskimo who has a rifle and plenty of cartridges must still use his harpoon for this hunting.

Many Eskimos now spend the summer in canvas tents. Some use gasoline engines in their fishing boats. That makes fishing easier.

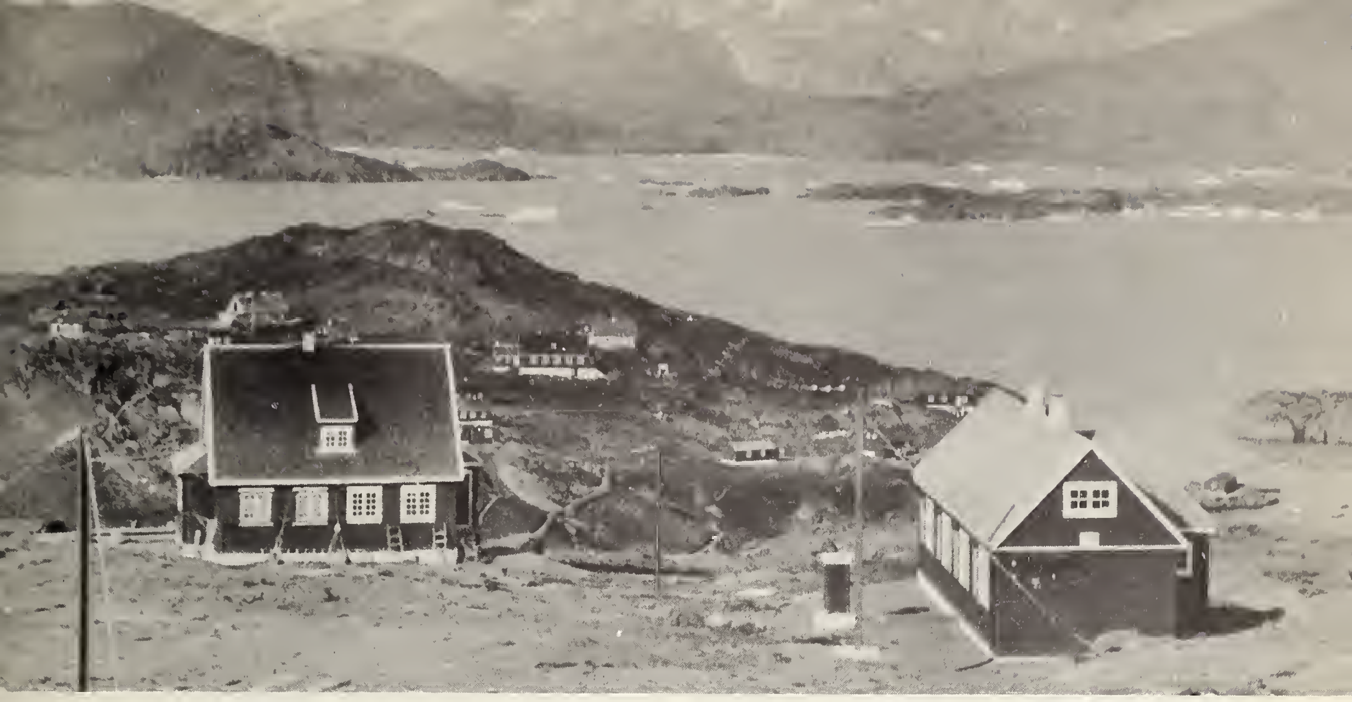
Ahpellah lives in North Greenland. There is so much ice in the sea there that it is hard for trading ships to get that far north. Ships go to South Greenland every summer.

South Greenland is ruled by people from Denmark. The Danes have built a factory for canning fish. Some Eskimos now work in the canning factory. Ships that carry the canned fish to market bring back lumber for the Eskimo houses which Sam saw as he flew over southern Greenland. An Eskimo must sell a lot of fish and furs to buy lumber enough for a house. More than half of the Greenland Eskimos still spend the winter in the igloo. Some of these Eskimos have married European men or women. Children in the part of Greenland nearest to the United States go to school as you do and read books as you do.

Some Eskimos now say they are Americans. They live in Alaska.

Alaska belongs to the United States. Ships visit most of the shores of Alaska every summer. This gives the Eskimos there a chance to trade with people in the United States. Some of the Alaskan Eskimos now live in houses as we do, but their health is not as good as when they lived in igloos and tents.

They may live in our kind of house, they may have stoves and radios and buy many things at the store, but most of them still get their living by hunting and fishing as they always did. What



Capt. Bartlett from Gendreau

An example of a more permanent village is this one near Cape York, Greenland. Why are the houses built of lumber instead of snow or sod?

else can they do? It is too cold for farms where they live.

The Eskimos of one village have their winter home on an island west of Alaska. In summer they get into their boats and go to Nome, a town on the northwestern coast of Alaska. Nome is a modern town with wide streets, telephone and electric services. These Eskimos spend the summer in Nome, and in autumn return to their island.

Some of the Eskimo women of Alaska have learned a new job. Those who were good at sewing fur, now make parkas. A parka is a fur-lined coat with a hood attached. Aviators wear them. The Eskimo women of Alaska have made thousands and thousands of parkas for aviators.

The Eskimos in Asia are better educated than other Eskimos. Some of them are doctors, nurses, or airplane pilots. Eskimos have good minds. They are interested in machinery and quickly learn to use machines.

Since we have airplanes, Eskimo Land is more important to us. We can get there so much more easily.

Not long ago men had only ships to take them to the Arctic Ocean. In most parts this ocean was so full of ice that ships could not get through. Sometimes the wind moved the ice and ships were crushed by the great weight of floating ice. It is not strange that men were afraid of the Arctic Ocean.

Now the airplane helps the ships to get through the ice. The captain of a ship cannot see very far ahead of his ship. But a man in an airplane half a mile above the ship, or even a mile above it, can see a great distance. He can see where there is ice and where there is open water. He can speak by radio to the captain of the ship. He can tell the captain where to take his ship so as to keep in open water and away from ice.

Since airplanes have been helping, ships have been getting along better in the Arctic Ocean. Russian ships go through the ocean from Europe to the Bering Strait every summer. American trading boats go through it from Labrador to Alaska every year.

The airplane also carries some trade to Eskimo Land. A plane can carry rifles and cartridges and small costly things, and it can bring back a load of costly furs.

An aviator can find many places in Eskimo Land where he can land his plane without anyone having to work to make a landing strip. In winter, planes can land on any lake or on the frozen surface of the sea or a river.

Not long ago four Russian airplanes flew to the North Pole. The planes landed on the frozen surface of the Arctic Ocean. The planes brought a party of explorers and tons of supplies. Then they flew back to Russia. The explorers set up their camp. They had gasoline and an engine to run their radio and to make electric light. They camped for months on a field of ice that floated about in the Arctic Ocean. The explorers were there to see what they could learn about the Arctic Ocean and about the weather there.

When the explorers were ready to go home, they sent word by radio, and the planes came to their camp and took them back to Russia.

Eskimos will be seeing more and more planes flying over their country as the years go by. Many airports have been built in Alaska and in Canada. Some Eskimos work for money in these airports.

1. Why do most of the Eskimos in Alaska still get their living from hunting and fishing?

2. How is the airplane helpful to ships in the Arctic Ocean?

3. How is the airplane useful to Arctic explorers?

Some Things to Do

1. You may want to keep a list of geographical terms and their meanings in your notebook. So far you have learned the geographical terms—

continent
island
ocean

In this chapter you read about Bering Strait. Look for the word "strait" in your dictionary. Study the definition, then write it in your own words. Add it to your list of geographical terms.

2. Suppose you are one of a group of explorers who are planning a trip to the Greenland Ice Cap. Tell the class about your plans. Tell about the supplies you will take and why you will need them. Use a globe or a map to show the way you will travel to Greenland.

3. You will read in Unit III about the tundra, the land of frozen earth, or soft mud and grass, and the Eskimos who live there. In what ways do you think airplanes could be useful to these people?

4. Admiral Byrd and his men used ships, sledges, and airplanes in their exploration of the Antarctic region. Which means of transportation do you think helped them most? Why?

A Short Quiz

Give the best answer you can to these questions—

1. Why do some Eskimos trade more than others?
2. Why are their small villages far apart?
3. What is the reason there are so few houses of wood along the Arctic Sea?

Stories You Will Enjoy

The Little Igloo by Lorraine Beim (Levey) and Jerrold Beim—Harcourt

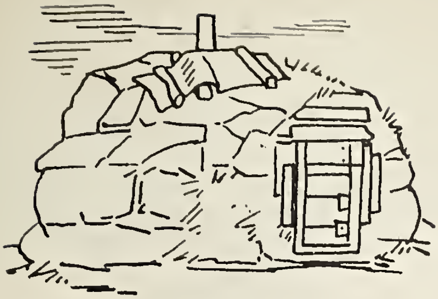
The Polar Bear Twins by Jane F. Tompkins (Mrs. B. M. McConnell)—Stokes

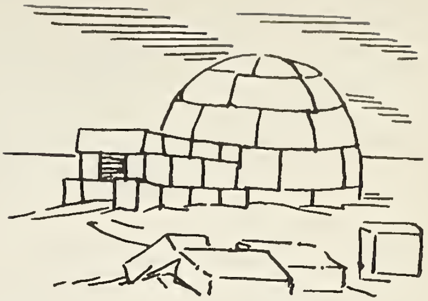
Snow Children by Hattie Adell Walker—Beckley-Cardy

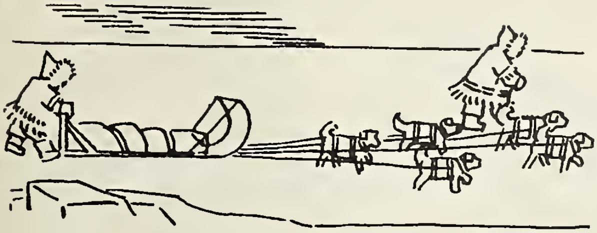
Iceblink by Rutherford George Montgomery—Holt

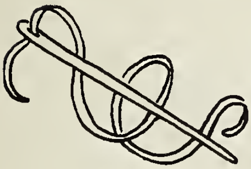
My Life With the Eskimos by Vilhjálmar Stefansson—Macmillan

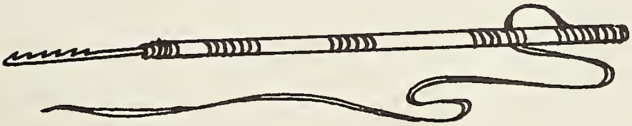
On Arctic Ice by Frederick Machetanz—Scribner







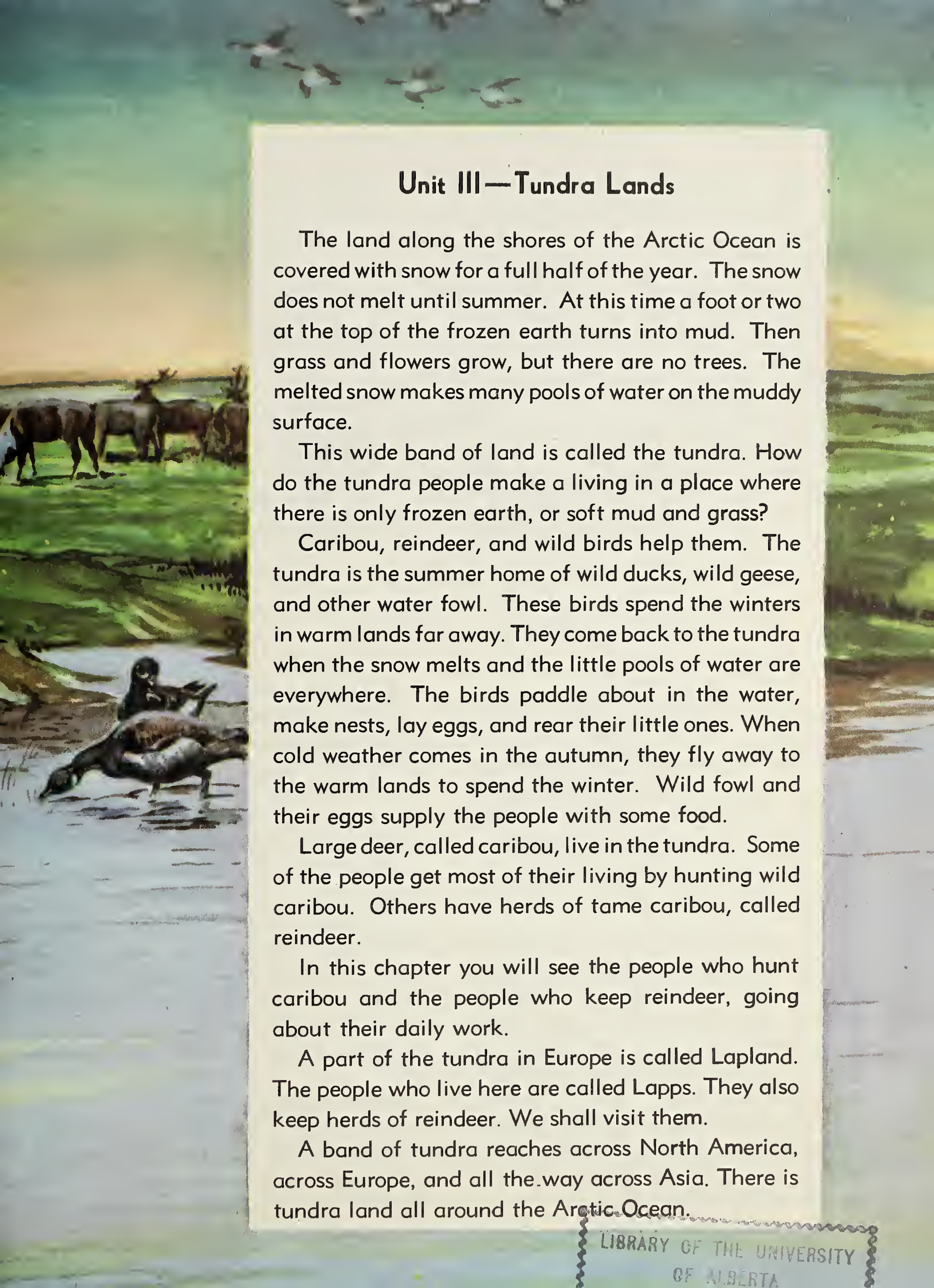




A Summary

1. Make a list of the words needed to complete these sentences—
   - a. An Eskimo house is called an ______. The houses pictured above are used during the ______ season.
   - b. The ______ is the fishing boat.
   - c. A sea animal shown above that is important to the Eskimo is the ______.
   - d. The white ______ is a very good seal hunter.
   - e. An important weapon of the man who hunts for seal is the ______.
   - f. Eskimos use ______ for thread and ____ for needles.

2. Explain why these statements about the Eskimo and his land are true—
   - a. The Eskimo gets very little that he can use from the land.
   - b. The place in which he lives is often called the Land of the Midnight Sun.
   - c. The Eskimos get most of their living from the seal.
   - d. The airplane helps trading between the Eskimos and people of the United States and Europe.
   - e. Eskimos show great skill in getting the things they need, such as food, clothing, shelter, and fuel.



Unit III—Tundra Lands

The land along the shores of the Arctic Ocean is covered with snow for a full half of the year. The snow does not melt until summer. At this time a foot or two at the top of the frozen earth turns into mud. Then grass and flowers grow, but there are no trees. The melted snow makes many pools of water on the muddy surface.

This wide band of land is called the tundra. How do the tundra people make a living in a place where there is only frozen earth, or soft mud and grass?

Caribou, reindeer, and wild birds help them. The tundra is the summer home of wild ducks, wild geese, and other water fowl. These birds spend the winters in warm lands far away. They come back to the tundra when the snow melts and the little pools of water are everywhere. The birds paddle about in the water, make nests, lay eggs, and rear their little ones. When cold weather comes in the autumn, they fly away to the warm lands to spend the winter. Wild fowl and their eggs supply the people with some food.

Large deer, called caribou, live in the tundra. Some of the people get most of their living by hunting wild caribou. Others have herds of tame caribou, called reindeer.

In this chapter you will see the people who hunt caribou and the people who keep reindeer, going about their daily work.

A part of the tundra in Europe is called Lapland. The people who live here are called Lapps. They also keep herds of reindeer. We shall visit them.

A band of tundra reaches across North America, across Europe, and all the way across Asia. There is tundra land all around the Arctic Ocean.

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Black Star

Chapter 8

Caribou and Reindeer

Caribou in the Tundra

In a part of North America, about halfway between Greenland and Asia, are some Eskimos who live in the tundra. They have caribou instead of seals and fish. The Eskimos who hunt caribou live very much as other Eskimos do. Caribou are to them what seals, walrus, and fish are to the Eskimos near the shores of the sea.

In summer the caribou eats grass, buttercups, and other flowering plants. Some caribou stay on the tundra in winter. They do not mind cold weather. They have warm skins and thick hair. Those that stay in winter eat the moss which grows on the tundra. To get the moss they dig down through the snow with their wide, flat hoofs. These hoofs are good for digging. The caribou can dig through 2 feet of snow.

In autumn many of the caribou go away. They go south, but not so far as the geese and ducks go. The caribou go to the woodland at the edge of the tundra. There they live all winter in the woods, eating moss and the twigs of bushes. The woodland is a warmer place in winter than the tundra. The trees break the force of the winter wind.

In summer, while the shore Eskimos are hunting seals and fish and storing them for winter, the inland Eskimos are hunting caribou. They put the meat away for winter in the same way that the shore Eskimos store their winter food.

There is not very much fat on caribou to make oil for the lamp. The inland Eskimos sometimes have to live for days at a time without lamp or fire. They may have to sit in the dark, cold tent or igloo and eat raw meat, but they are cheerful about it.

1. On a globe or a flat map locate the tundra in North America.
2. What do the caribou eat in summer?
3. Why do many of the caribou go to the woodland at the edge of the tundra in autumn?
4. How do the tundra Eskimos make a living?

Reindeer in Lapland

You have read about the shore Eskimos who make their living by hunting seal and walrus. You also have learned that some other Eskimos make their living by hunting wild caribou. There is still another way of making a living in the tundra. Some people keep tame caribou and make their living from them. Tame caribou are called reindeer.

The tundra people in Asia and Europe tamed the wild caribou hundreds of years ago. They learned to make their living by having herds of reindeer.

The people who live in the part of the tundra in Europe nearest the Atlantic Ocean are called Lapps. The tundra land where they live and herd reindeer is sometimes called Lapland.

An American gentleman went to Lapland to visit the Lapps. The first family he saw was living in a round tent. In the middle of the tent was a cooking fire. They burned wood of small bushes which grew in that part of the tundra. The smoke from their cooking fire went out through a big hole in the top of the tent.

The American shook hands with every member of the family in the tent. They offered him a seat by the fire. The seat was a reindeer-skin bag filled with reindeer skins. The Lapps served coffee to their guests in cups carved from wood.

The floor of the tent was covered to the depth of about 6 inches with short twigs. The twigs kept the floor of the tent dry. Bedtime came. The Lapps showed the American a place where he could sleep. It was on the floor beside the fire. They opened a bag of reindeer skins and gave them to him. He laid reindeer skins on the twigs. He took off his shoes, wrapped himself in reindeer skins, and slept on the twigs.

Are you surprised that the Lapps had coffee? They bought it as we do. It is not far from Lapland to places where traders' ships can come. The Lapps sell frozen reindeer meat in winter and buy some things. Most of their needs are supplied by the reindeer. They use reindeer skins as the Eskimos use sealskin. They use reindeer sinew as thread. This makes their boots waterproof like the Eskimos' boots. Every part of the reindeer is used for something.

At the beginning of summer several families of Lapps join together in a kind of moving village. They put their tents and other things into bundles. They put the bundles on the backs of reindeer. They drive the reindeer out on the tundra. They go where there are some small bushes, 2 or 3 feet high. These bushes supply twigs for the tent floor and enough small sticks for the cooking fire. The Lapps set up their tents. This is home for a short time.

The reindeer eat grass and other tundra plants. For a part of the time they almost live on the buttercup. It is sometimes called the reindeer flower. In ten days or in two weeks the herd of reindeer has eaten all the good food near the camp. The people move again. They go a few miles to a place where there is more food for the deer. There the moving village makes another camp. This place now is their home for a little while. They keep moving like this all summer.

The dogs are trained to help. If a deer strays from the flock, a dog goes out and drives it back. A dog is a much better helper than another man would be. The dog can run much faster than a man.

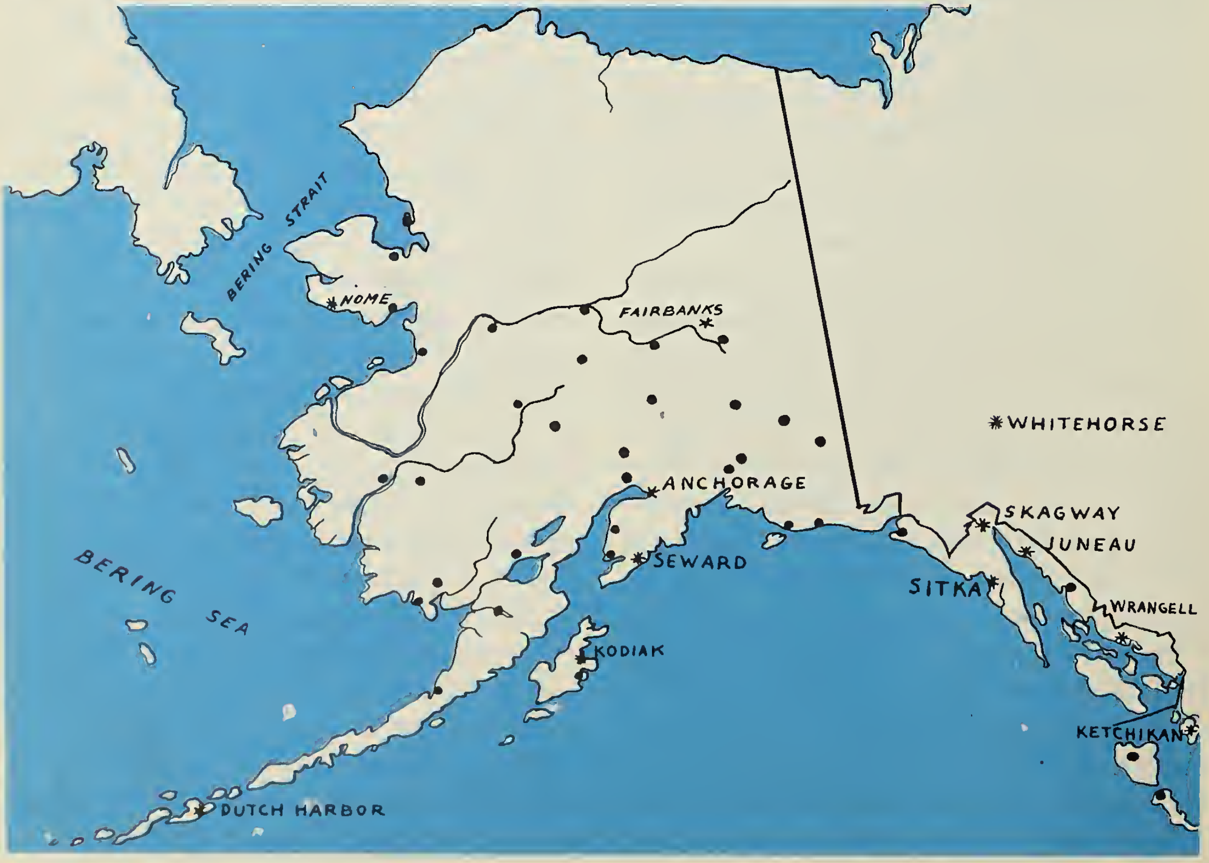
While camping, the people have smoked reindeer meat, fresh reindeer meat, reindeer milk, cheese, and fish from the streams for food. In summer the tundra has wild raspberries and other berries that they can eat.

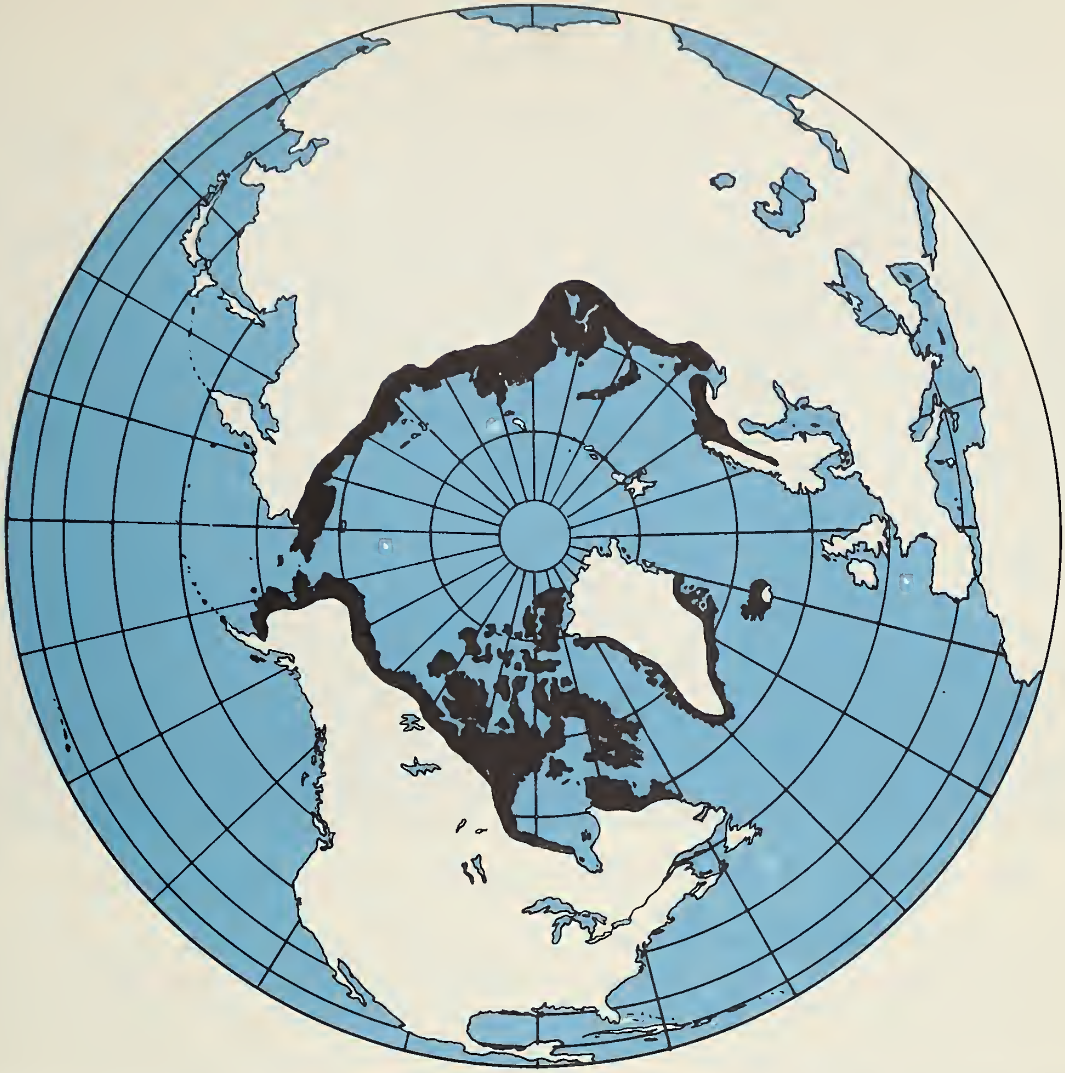
The Lapp children in this moving village have a school. A teacher goes with the camp. One tent is the school tent. There were three grades in the tent school that the American visited—first grade, second grade, and third grade. There were no desks. The children sat or knelt on the twigs, but they had blackboards and books. These Lapp boys and girls study reading, writing, and numbers. They study the plants that grow where they are camping. They study geography and make maps to show the journey they are taking.

When winter comes, the Laplander drives his herd of reindeer into the wooded country. In the woods the reindeer digs moss from under the snow. Moss is his winter food. The Laplander finds a place that is somewhat sheltered from wind. Here he puts his winter tent, a larger and warmer one than his summer tent. Sometimes he makes a turf or sod house much like an igloo. Some winter houses are made of boards or logs.

When snow comes the Laplanders hitch the reindeer to sleds. A deer can

People of the Arctic regions are making good use of the airplane. Each of the places marked on this map is an airport or a landing field. What advantages has the plane brought to the Eskimos?





The black areas show the strip of tundra land—the land of frozen earth and soft mud. What kind of work is done by people who live in the tundra?

U. S. Dept. of the Interior

Galloway

In summer Lapps live in tents like this one. What materials do they use for their clothing?

carry more on a sled than on his back. Sometimes the Lapp boys and girls ride a quiet reindeer, but the animal is not strong enough to carry a man.

The wolf is the greatest trouble of the Lapland reindeer keeper. Wolves like to eat reindeer, and wolves are very smart fellows. They sneak about and watch the herd both winter and summer. If ever they find a reindeer or a reindeer calf away from the herd, the wolves get it. The Laplanders have to take turns watching their flocks both day and night to keep the wolves away. In winter the Lapps travel through the woods on skis, hunting wolves.

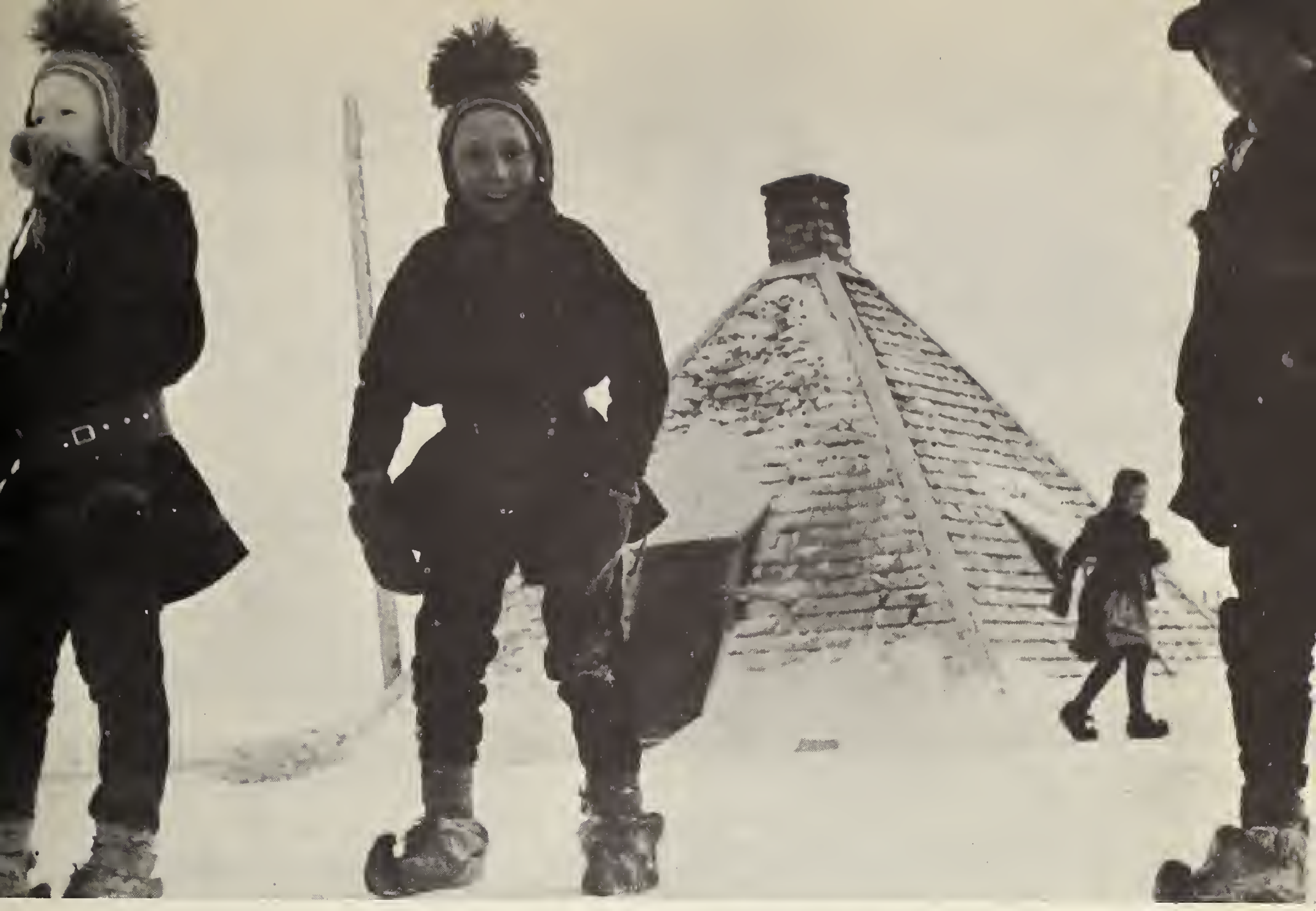
Other people who keep reindeer are scattered all the way along the tundra from Lapland to the Pacific Ocean. Some of them follow their herds on the tundra all winter. They have to move their camps and watch for wolves in the coldest weather. That is a very hard life indeed.

1. On a globe or a map locate the tundra land in Europe and Asia.
2. How do the people in Lapland make a living?
3. Why do the Lapps move their camps?
4. What do you understand is the difference between caribou and reindeer?

Reindeer in Alaska and Canada

About fifty years ago American hunters with good rifles went to Alaska. They killed so many of the seal and walrus and caribou that many Eskimos could not get enough to eat.

An American who was teaching Eskimo boys and girls saw that his Eskimo



Black Star

Lapland school children enjoy their recreation time. Why do you think the schoolhouse is built in this way?

friends were starving. He came to the United States and begged people to give money to save the starving Eskimos of Alaska. He took this money to Asia and with it bought tame reindeer from the people in Asia. He put the deer in boats and brought them across the ocean to Alaska. He brought several families of Lapland reindeer keepers to Alaska. The Lapps took care of the reindeer in Alaska as they had done in Lapland. The Eskimos helped them. In this way the Eskimos learned to take care of reindeer in the same way the Laplanders do.

This was more than forty years ago. Now there are many reindeer in Alaska. Some Eskimos in Alaska make their living at the present time by keeping reindeer as the Laplanders taught them. They do not like it very much. Keeping reindeer the Lapland way is hard work. It is steady work. They must be at it night and day to keep the wolves away and to keep the animals from wandering away.

The Eskimos would rather hunt for a while and rest for a while. That is the way their people have done for a long, long time. But one cannot live by hunting unless there is plenty of game.

There are now herds of tame reindeer in Canada. The Canadian Government has brought reindeer from Alaska and is teaching the Eskimos of Canada how to herd reindeer. Near the mouth of the Mackenzie River there is a school where Eskimos learn to keep reindeer.

The wolf is in Alaska and in Canada too, just as he is in Lapland. He is the

Swedish Travel Information Bureau

Another group of Lapp children play games while their teacher looks on. What season is this?

worst trouble the Eskimo reindeer keeper has, just as he is in Lapland. It is so easy for the wolves to hide in the bushes and jump out on the reindeer when the reindeer is hunting food and the herder is not there. The people wish that they knew a better way of catching wolves. Some plan to hunt wolves from airplanes.

The use of the airplane has made traveling to the tundra and in it easier than before. If planes can be used to help kill the wolves, it will be fine.

Suppose you are in Fairbanks, Alaska, and want to go to Nome. For four months in summer you can go in a steamboat. In winter, when the river is frozen, you can go by airplane. Before the airplanes were used, winter travel was by dog sledge. It took a month and the ticket cost five hundred dollars. The airplane ticket costs very much less, and you can get to Nome in a few hours.

We have read about caribou and reindeer in the tundra land near the Arctic Sea. What about Antarctica?

There is just a tiny bit of tundra on some small islands near Antarctica. These small patches of land have grass and flowers like the Arctic tundra, but there is not enough tundra there to feed caribou or reindeer.

1. Why did Eskimos in Alaska and Canada begin to herd reindeer?

2. On a globe or a map, locate Fairbanks, Alaska. From Fairbanks, on what river could you travel in summer to reach Nome?

Some Things to Do

1. Look in your dictionary for the words "arctic" and "tundra." Study their meanings and add them to your notebook list of geographical terms.

2. Write a story describing the American's visit to the Lapp family. Be sure to tell about the tent, the fire, the food, and the bed.

A Short Quiz

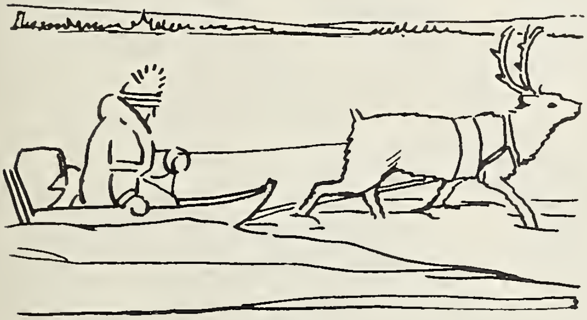
In each of the following sentences you will find several words in parentheses like these, ( ). Copy each sentence, but write only the word in the parentheses that is needed to make the sentence true.

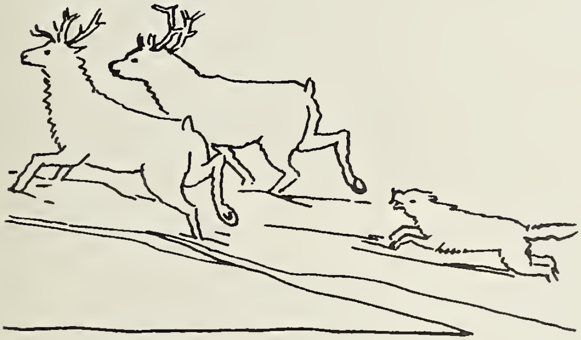
1. The Eskimos who live on the tundra hunt (dogs, beavers, caribou).
2. Some caribou go to the warmer (tundra, desert, woodland) in winter.
3. Tame caribou are called (reindeer, seals, penguins).
4. Lapps live in (tents, igloos, grass huts) that can be moved from place to place.
5. (Servants, Dogs, Horses) help the Lapps tend their herds of reindeer.
6. The (seal, lion, wolf) is the greatest trouble for the Lapland reindeer herders.
7. The Eskimos learned about herding reindeer from the (Lapps, French, Canadians).
8. Travel in the tundra has been made easier by the (automobile, airplane, train).

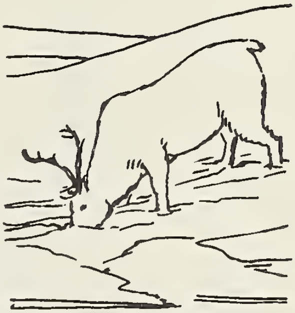
Stories You Will Enjoy

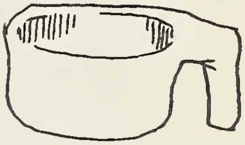
Children of the Northlights by Mrs. Ingri d'Aulaire (Mortenson) and Edgar Parin d'Aulaire—Viking

White Reindeer by James Neill—Scribner





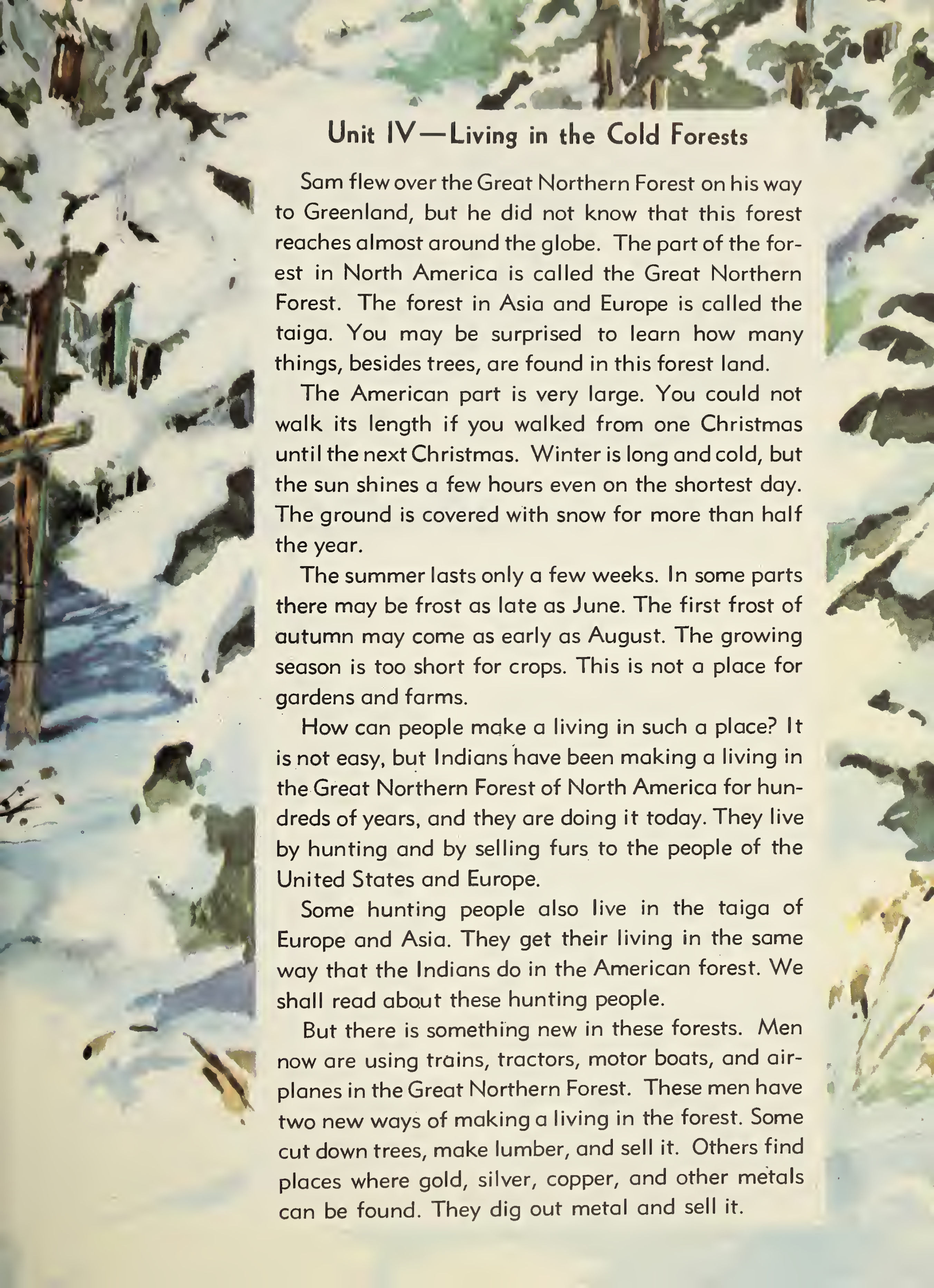




A Summary

Use the story, the illustrations, and the drawings in Chapter 8 to help you explain each of the following—

1. Why Lapps live in tents in summer.
2. How smoke from the cooking fire gets out of the tent.
3. Why birds come to the tundra lands in summer.
4. Why caribou can live on tundra land but not on arctic land.
5. The difference between caribou and reindeer.
6. The reindeer keeper has a four-footed enemy.
7. Reindeer keepers are continually moving from place to place.
8. Warm clothing is needed all through the year.
9. Caribou are to tundra Eskimos what seals, walrus, and fish are to Eskimos near the shores of the sea.
10. How Lapps travel through the woods in winter.
11. Lapp schools have sloping walls.
12. How the Lapps get the things they need in order to live.
13. How the airplane can help the reindeer keeper.



Unit IV—Living in the Cold Forests

Sam flew over the Great Northern Forest on his way to Greenland, but he did not know that this forest reaches almost around the globe. The part of the forest in North America is called the Great Northern Forest. The forest in Asia and Europe is called the taiga. You may be surprised to learn how many things, besides trees, are found in this forest land.

The American part is very large. You could not walk its length if you walked from one Christmas until the next Christmas. Winter is long and cold, but the sun shines a few hours even on the shortest day. The ground is covered with snow for more than half the year.

The summer lasts only a few weeks. In some parts there may be frost as late as June. The first frost of autumn may come as early as August. The growing season is too short for crops. This is not a place for gardens and farms.

How can people make a living in such a place? It is not easy, but Indians have been making a living in the Great Northern Forest of North America for hundreds of years, and they are doing it today. They live by hunting and by selling furs to the people of the United States and Europe.

Some hunting people also live in the taiga of Europe and Asia. They get their living in the same way that the Indians do in the American forest. We shall read about these hunting people.

But there is something new in these forests. Men now are using trains, tractors, motor boats, and airplanes in the Great Northern Forest. These men have two new ways of making a living in the forest. Some cut down trees, make lumber, and sell it. Others find places where gold, silver, copper, and other metals can be found. They dig out metal and sell it.

Montanans, Inc.

Chapter 9

Indians in the Forests of Canada

The Fur Trappers

It is October, and several Indian families are camping beside a small lake, near Great Slave Lake in the Great Northern Forest. One cool evening, Muli and several other Indian boys see in the twilight a canoe coming across the lake. They rush to the water's edge to get the news. Muli's father steps out of the canoe. He brings good news.

"I saw caribou today," he says.

"Caribou! Caribou!" shouts Muli.

"Caribou!" shouts another boy.

The Indians come running out of the tents. "Caribou!" they shout. "Meat time! Meat time! Now we eat meat. No more fish! So tired of fish! Hurrah!"

All the people in the camp celebrate like schoolboys who have won a game.

The next day Muli's father and some other men take their rifles and hunt caribou. The whole camp eats fresh caribou meat for supper that evening.

The caribou is the most important animal of these Indians. Caribou meat is their favorite food. Often it is their only food.

In summer these forest Indians get very little fresh meat. They may catch a few rabbits or a wild goose now and then, but most of the time they must eat the fish they catch in the streams and lakes. But people tire of eating fish much sooner than they tire of eating meat. When the Indians hear that the caribou have come, they know that soon the hunters will bring caribou meat to the camp.

The caribou have spent the summer eating grass and moss on the tundra to the north of the forest. When cold winds begin to blow, many of the caribou leave the tundra. They move south to spend the winter months among the trees of the great forest. Most of the trees of this forest are evergreens. At the northern edge, near the tundra, the trees are few and small. There is a small tree and then an open space, and then another little tree or two. As we go on to the south, the trees get larger and are closer together, until there is a real forest. The trees break the force of the bitter wind.

The caribou move southward from the tundra in large herds, sometimes hundreds together. They come to the forest and there eat branches of the willow and other bushes that grow among the evergreens. In winter they often eat moss which grows on the ground. The caribou dig the moss from under the snow with their big feet.

In October the Indians begin to hunt caribou with rifles. Then people and dogs feast on the meat. The dogs get fat and ready for the winter's work. Both men and animals need more meat and more fat in winter. It helps to keep their bodies warm. So the Indians fairly stuff themselves with caribou meat. They smoke some of the meat to make it keep, and some of it they dry. They scrape the skins and make them ready for use. These people use the skin of the caribou in many ways. The caribou is as useful to the forest Indian as the seal is to the shore Eskimo.

Winter is coming fast now. One morning the ground is covered with snow.

Soon there is not a single day when the ice and snow will melt even a little. The bitter wind cuts the face like a whip. The Indians make their camp on the sunny side of groups of thick evergreen trees. The trees break the force of the wind for men just as they do for wild animals.

As the days pass more snow falls. It lies deep upon the ground. The streams become almost solid ice. Lakes freeze over. Men and animals cross the lakes and streams as though crossing land. At this time of the year you can walk in this forest for days and weeks, and everywhere you are in a land of ice and snow. This land is much like the tundra, except that there are trees. There is also more sunshine in winter.

1. Why are the Indians who live near the Great Slave Lake glad to hear that the caribou have come?
2. Why do the caribou move southward in winter?

The Trip to the Hunting Grounds

Snow lies on the ground now and the ice is thick on the lakes and streams. Yagoli, Muli's father, says to his wife, Natuti, "It is time to trap. We must get plenty of furs."

Yagoli is thinking of all the furs he would like to take to the trading post in

Indian men trap the animals, but the women do much of the work of preparing the hides. Here an Indian woman is scraping a hide.

American Mus. of Nat. His.

U. S. Dept. of the Interior

An Eskimo member of the Nome Skin Sewer's Association at Nome, Alaska, is working on a pair of mukluks. Mukluks are skin boots, very warm and very necessary in the cold northern regions.

the spring. The trading post is the white man's store. Yagoli wants to trade furs and skins for a stove, for cartridges, and for steel traps, and maybe for some fruit in cans.

"Taste much better than dried berries," thinks Yagoli.

"Come, Natuti, mend my moccasins —three pairs," Yagoli says.

Moccasins are Indian shoes made of the skin of caribou. The moccasin is the best kind of shoe in the cold forest. It is soft and lets the muscles of the foot move freely. This helps to keep the feet warm. The moccasins are big enough so that two or three pairs of blanket socks can be worn inside.

Soon the Indian men will start on the winter's work of hunting and trapping. Many things must be made ready. Besides mending the old moccasins, Natuti and her daughter, Deti, make new moccasins.

Yagoli mends the dog harness. Muli makes a pair of snowshoes for himself. A man on snowshoes can walk on top of snow. Without them he might sink in snow up to his knees, or even deeper.

Yagoli and Muli spend two or three days making a new sled. They make the sled of thin birchwood. This sled, or toboggan, is about 8 feet long and 18 inches wide. It is made without any runners.

The sled will not upset easily because its flat bottom rests upon the snow. Yagoli bends the piece of birchwood up at one end so that the toboggan will slide easily over the snow.

Yagoli makes a deep box that is as long and as wide as the toboggan. The box is made of birchbark, and will be fastened on the sled. Now everything has been made ready. Natuti puts the covers for the tepee, or tent, into the box. She folds the sleeping blankets of caribou skins and lays them on top of the tepee. Into the box also go the ax, many steel traps, some tin pans, a tin bucket, Yagoli's rifle, some cartridges, and a small iron stove. The Indians got these things by trading furs for them at the trading post last spring.

Natuti packs food in a leather bag and puts it in the box. When everything is safely packed, the box is tied fast to the sled. Everything the family owns, except the dogs, is carefully packed on this one sled.

The baby is safe and warm in his birchbark box on top of the larger box. He lies in dry moss and is covered with a blanket of caribou skin. The loaded sled makes a heavy weight for the four dogs to pull.

Natuti shouts to the dogs. Away they all go! They go eastward to spend the winter trapping and hunting in the forest.

Four families are in the party. Each family has a sled and dog team. Yagoli on his big snowshoes walks in front. The soft snow is almost knee deep. Yagoli tramps the snow and mashes some of it down. Then the dogs, one behind the other, pulling the sled, can follow where he has walked. It is hard work to tramp down the snow so that the dogs and sleds can make a trail. The men take turns doing it. The women and the older children walk behind the sled in the trail that the men and dogs have made. The children laugh and call to one another as they go through the snowy forest.

Now the sun has set. Everyone is glad when Yagoli stops beside a frozen stream. Each family unfastens its dogs and ties each one to a tree. Muli cuts branches of spruce to make beds for their dogs. Then he gives each dog some smoked caribou meat. When the dogs have eaten and are resting on their beds of spruce branches, the Indians cut tent poles and set them up. They cover the poles with the skins of their tepees.

Natuti and Deti cut spruce branches and lay them for a carpet on the snow inside the tent. Then they go to get firewood. This is not easy work in deep snow. But soon they have a fire burning in the little iron stove. The inside of the tent gets warm quickly. Yagoli takes off his moccasins and shakes off the snow. He fills them with spruce needles and hangs them above the stove to dry. No Indian wants a wet moccasin on his foot next morning.

Canadian National Railways

Indian and huskies travel along the Blanc Bec Trail in Canada. Huskies are still one of the chief means of transporting people and goods in the Northern Forest.

Natuti goes to the frozen stream. She cuts a hole in the ice with the ax. She dips up a bucket of water and brings it to the tent. Soon she has enough boiling water to cook smoked caribou meat for all to eat. How good the hot meat tastes to the tired Indians!

Now it is time for bed. Someone fills the little stove with wood. They all wrap themselves in caribou blankets and

Life Magazine

A catch of fox pelts is held up by the daughter of a trapper. Fur-bearing animals are caught in cold forests around the world. How do you think people use fur?

lie down to sleep on the spruce branches. Caribou skins laid on spruce branches make a comfortable bed. The baby is warm in his birchbark box full of moss.

At daylight all are up. After eating a little food, they put their things on the sleds again and go on their way. All that day they go eastward through the forest. They keep going on the third day and the fourth day.

"Here we stop," says Yagoli. "Here we stay. Here we set traps."

The next day the four families rest after the long, hard journey.

1. What is the winter work of the forest Indians?

2. Name five things the Indians get by trading furs at the post.

3. What kind of shoes would you wear if you lived with the fur trappers? Give reasons.

4. Why do you think Yagoli fills his wet moccasins with spruce needles?

Catching Fur-bearing Animals

In the morning the four men go to set the traps in the forest. Each loads his sled with sleeping blankets, some smoked meat, and many steel traps. Dogs pull the sleds. Yagoli and Muli go north. Another man goes west, another south. The fourth goes east.

From time to time, Yagoli sets one of his traps where he thinks it might catch some fur-bearing animal. He baits the trap with strong-smelling meat.

When night comes, Yagoli and Muli build a fire. They hang up a blanket of caribou skin to keep off the wind. They lay a carpet of spruce branches between the fire and the blanket. When they have eaten some of the smoked meat, they wrap themselves in blankets of caribou skin and lie down to sleep on the spruce branches. The fire soon burns low and the night grows cold, but the Indians do not mind. They know how to keep the body warm.

After two days of traveling through the woods setting traps, the men return to the place where their families are camping. They rest one day. Then they go to see what their traps have caught. Yagoli finds a marten, a mink, and a fisher. These are all small animals, but they are valuable for their fine furs.

When night comes, the trappers sit by the fire in the woods and skin the animals they have caught. They give the raw meat to the dogs.

The Indians do not use the fur of these small animals very much for themselves. They like caribou skin better.

But they want money, so they are very glad to get such fine furs to sell. People in the cities of our country and of Europe pay high prices for these furs. For that reason the men at the trading post buy the furs from the Indians. When Yagoli sells many furs he can buy the things the family needs.

While the trappers make the rounds tending the traps, Natuti and Deti scrape and clean the skins. They stretch every skin and dry it carefully. They want the fur to bring a good price. As Deti scrapes the skins, she thinks of the beads and the hair bow she hopes to get with money from the furs next summer at the trading post.

A few days later Yagoli and Muli make another round of the traps. This time nearly all of them are empty. So the four Indian families go another two days' journey eastward. When there are not many animals left in one place, the trappers have to move to another place. This they do all winter, moving every few days.

Now the sun rises earlier each day. The days are getting longer. The snow begins to melt. The season for trapping in the forest is over.

A worker covers the framework of a canoe with birchbark. The stakes around the canoe and the stones inside help to shape the canoe. Below are Indian children having a ride in a birchbark canoe.

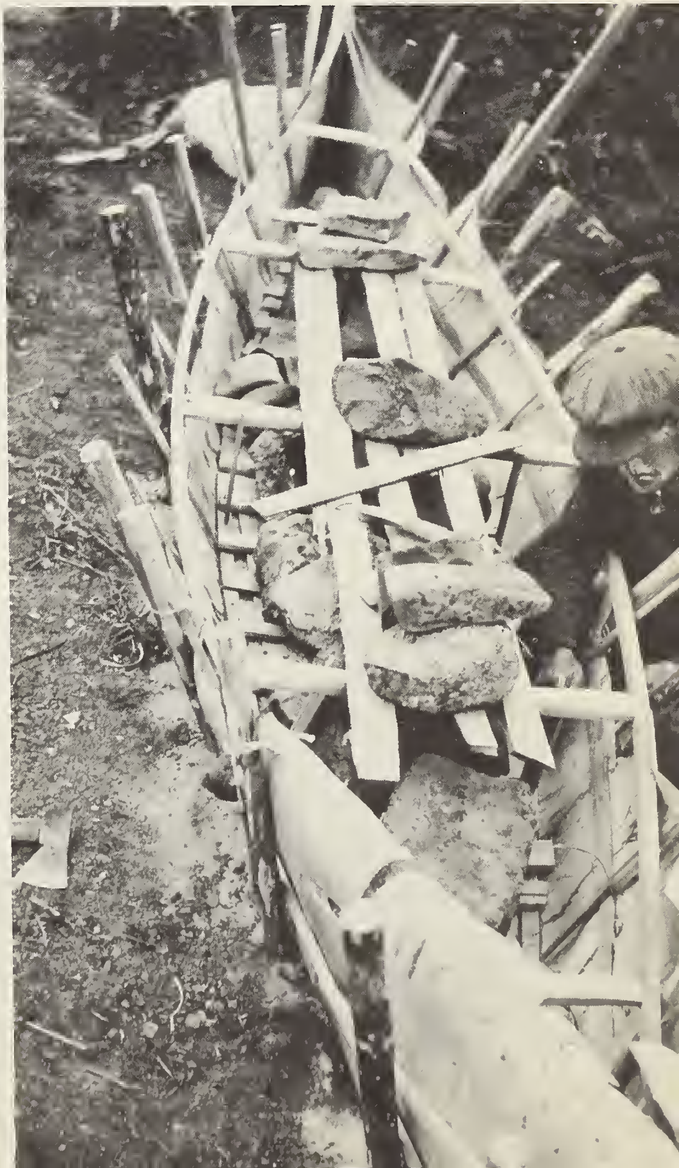
Nat. Mus. of Canada (below) *Hudson's Bay Co. (right)*

At this time of the year Yagoli and his family eat muskrat and fish. When the ice has melted, Natuti takes out a fish net which she had made the year before. There are many fish in the stream and few people fish there. It is easy to catch plenty of fish. The family and the dogs can have all the food they want now that spring is here.

1. Look for pictures of marten, mink, and fisher. Do you know any other animals whose furs are valuable?

2. Be ready to name three signs of spring in the cold northern forest.

3. Why do you think that a man who is lazy would be a poor trapper?



Yagoli's Birchbark Canoe

In nearly all parts of the Great Northern Forest there are no roads. Streams, rivers, and lakes must be used for roads. If you had only a stream for a road, what would you need? You would need a boat, of course.

Long ago the Indians learned that a canoe made of birchbark is the best kind of boat for the forest streams. This canoe is strong and light in weight. A man can carry his canoe from one stream to another. The canoe is as good for use in the Great Northern Forest as the kayak is in the waters of Eskimo Land.

Yagoli is making a new canoe this spring. The canoe must be large enough to take the family and their goods to the trading post. First, Yagoli makes a frame in the shape of a boat. He makes the frame of pieces of wood that he ties together with strings made of caribou skin.

When the frame is ready, Yagoli goes to a large birch tree. With his ax he strips sheets of bark from the smooth, round trunk of the tree. It is spring now and the bark comes off easily. The bark can be bent without breaking. Yagoli covers the outside of his canoe with the large pieces of birchbark. He ties each piece of bark firmly to the wooden frame. He fills the cracks between the pieces of birchbark with gum from a spruce tree. He puts some of the gum in every hole. This makes the canoe water-tight. With his ax and knife, Yagoli makes a new paddle from the trunk of a small tree. This takes a whole day.

The Indians use birchbark for so many things that they are often called "The Birchbark People." Before they bought things made of tin from the white man, every Indian woman in the forest made birchbark dishes and buckets. They made birchbark boxes and trunks for holding clothes. The trunks were sometimes 2 feet in length. The women cut the bark in different shapes. They made holes along the edges of the pieces with a small bone. They passed strips of leather through the holes. This fastened the pieces together.

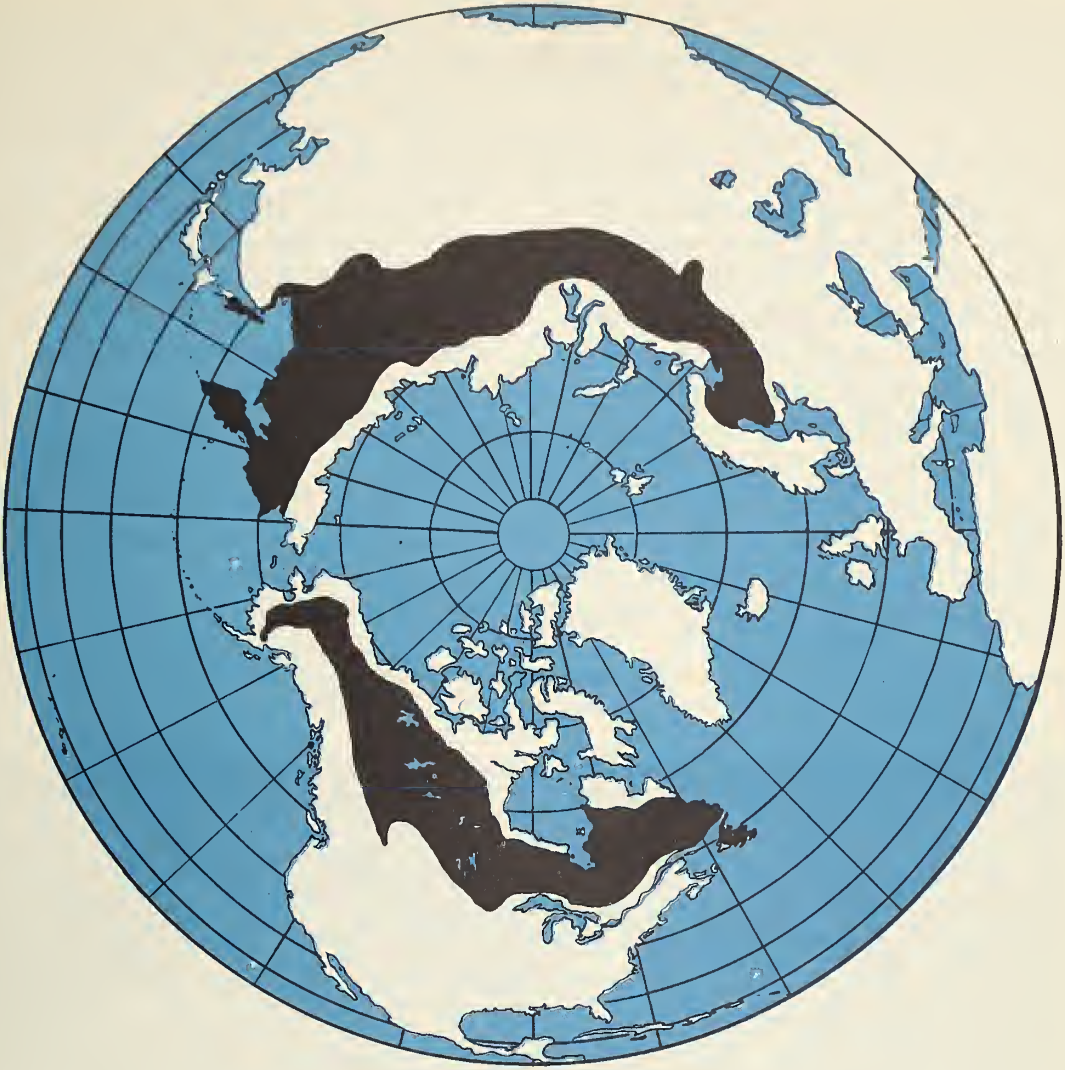
Some of the Indians still make birchbark dishes. These dishes do not last long, but more can be made quickly. They fold the birchbark in such a way that it may be used for bowls and cups. Dishes of birchbark do not cost money. Money is usually very hard to get in the forest.

While Yagoli works on the canoe, the children make toy dishes of birchbark. They make toy boats and sleds. They play they are going on journeys. When an Indian family moves, the children like to take their birchbark toys with them.

There is a rainy day while Yagoli is making the canoe. It is too wet to be outside, so the family stays in the tent by the fire. Yagoli tells stories. It is really a school day for the children. They want to know all the stories their father knows.

Most Indians do not read. They tell stories instead. The Indian people have a story to explain almost everything. They have a story about how Indians first got birchbark. This is the story as Yagoli tells it to the children—

"Once upon a time very long ago, winter held all our land in ice and snow. In this time of endless cold a child was crying. He cried and cried and kept on crying. But at last his mother learned that her child cried because he wanted to see the summer birds. The summer birds had gone away in the fall and the



The strip of forest land extends across North America, Europe, and Asia. Compare the location of the cold forests with that of the tundra lands. Part of the Alaska Highway passes through forests.

National Film Board of Canada

child missed them very much. So a party of people took the child southward toward the home of the summer birds.

"The party traveled many days. At last they came to a land where the people lived who had charge of all the warmth in the world. These people also had charge of the summer plants. Because birds must have warmth, these people had charge of the summer birds. They kept the birds safe by fastening them in cages made of birchbark.

"Guards watched the cages to keep the birds from harm. The visitors from the northland played a trick on the guards. They got the guards to leave the cages for a little while. Then the Indians ran into the house, opened the cages, and the birds flew away. They flew to the north, where their summer home was.

"Warmth followed the birds. Warmth drove away the cold and the snow. Summer plants began to bloom where snow had been.

"Since that time," says Yagoli, "the birds fly from south to north every spring, and they fly from north to south every fall.

"The party that returned from the south had learned the way of making things of birchbark. They taught our people how to do it, too.

A trapper gets food supplies at a trading post. These posts are somewhat like our general stores. They stock food, clothing, tools, ornaments—everything that may be needed by forest workers.

Hudson's Bay Co.

"My grandfather told me that some of our birchbark boxes are patterned after the cages in which the birds were kept in the southland long ago. That is why we often have figures of birds and leaves and flowers on our birch boxes. It is in honor of the party that went south and brought back birds, warmth, flowers, and birchbark.

"Now, Muli," says his father, "the next time we have a rainy day, you must tell the story. I want to see how well you know it."

The Indians of the woods have many stories like this, stories that tell how things came to be as they are.

1. In what ways is the Indian canoe different from the Eskimo kayak?
2. Why is it important that the canoe be light in weight?
3. If you lived with Muli would you rather have a canoe or an automobile? Why? Could you use an airplane there?

The Trip to the Trading Post

The next day is bright and sunny. The snow has gone and the ice has floated down the stream. The time has come to take the furs to the trading post far away. Yagoli spreads all their furs and skins on the ground. He lays each one smooth and straight. He has skins of mink, marten, beaver, fisher, fox, wolf, and lynx. Natuti and Deti remember the hours they spent scraping the skins and making them straight as they dried. They are happy that the furs and skins are so clean and smooth. That is the way the man at the trading post wants them to be. Yagoli rolls the skins to make a bundle. He wraps the bundle very carefully in a blanket of caribou skin. This bundle is the most valuable thing the Indians own.

"These furs," says Yagoli, "will bring us everything we need for next year."

The children are excited when their father puts the new canoe into the stream. How lightly it floats on the water! The children help to carry things from the tent to the bank of the stream. Only the sled and the birchbark box are left behind. They are too big to be taken.

Yagoli is glad he made a big canoe this time. He places the bundle of furs in the middle of the canoe. He puts the other things around it and the children get in. Natuti takes her place in the front end of the canoe. Yagoli takes his place in the back end. All is ready now. Everyone sits quietly in his place. Yagoli dips his paddle into the water.

Indian and Eskimo babies are safe and warm when carried in this way.

Nat. Mus. of Canada

He pulls the paddle strongly, and the canoe moves forward. The dogs run beside it along the bank of the stream.

The family is on its way to the trading post!

Natuti helps to paddle. From time to time Muli and Deti take their mother's place in the front of the boat. Yagoli teaches the children the fine points of paddling a canoe.

Some wild geese come flying over the tops of the trees. They are going north to Eskimo Land. Yagoli gives the call of a wild goose. He does it so well that two geese fly down to the water near the canoe. The family has goose for dinner! Muli tries the goose call. He wants to be able to make geese come to his call.

After two days the stream becomes too small to float the canoe. But Yagoli knows this place. He knows that there is another stream just over the hill. The family carry canoe and all their goods over the hill to the other stream.

The hill, or ridge of land, between the two streams causes the water on one side of the hill to run into one stream and the water on the other side of the hill to run into the other stream. The top of such a hill or ridge is called a divide. The ridge divides the water between the two streams.

The family paddles down this stream for four days. Day by day the stream grows larger. That is because other streams flow into it. On the fifth day they come to a lake.

On the other side of the lake, near the shore, is a building with roof, windows, and chimney. This is the trading post, or store. The storekeeper has nearly everything the people living in the forest might wish to buy. He welcomes the Indian family. He shakes hands with each one. He asks Yagoli if he has had good hunting. This man at the trading post buys furs. He knows the Indians have a bundle of furs to sell.

The women set up their tepee near the tents of some other Indians. They put their goods in the tent. They turn their canoe upside down on the grass. Yagoli and Natuti know many of the other Indians who have come to the trading post. They are glad to see their friends. What a fine time they have at the post!

Going to the trading post is the Indians' vacation. If they have enough furs to trade for food, they may stay at the post many days. They have a very good time visiting and playing games.

While the children are playing, Yagoli opens his bundle of furs. He trades some of the skins for white man's food that the family will enjoy for their evening meal.

"See my knife," calls Muli, as he opens its blades.

Before traders came to their country, the Indians lived on what they could find or catch or make for themselves. They made their things from wood, bark, flint, hide, horn, bone, and sinew. Buying a knife like Muli's, buying traps, guns, and other trade goods is something new for these Indians.

Yagoli has enough furs to buy a new stove, some traps, a hunting knife, some cartridges, a hatchet, some factory-made clothes, and needles and thread. Natuti buys a string of beads and Deti gets a hair bow.

The day after Yagoli and his family come to the trading post an airplane comes flying over the woods. The plane circles around and lands on the lake near the trading post. All the Indians stop the games they are playing and go to see the airplane. Many have seen planes flying far above their heads in the forest, but everyone is glad to have a closer look.

The plane brings a man who wants to buy furs. The storekeeper spreads out some pieces. He and the fur buyer look at them all very carefully and count them. The fur buyer makes the furs into bundles. He takes the bundles with him in the plane and flies away to the south.

In a few hours the furs the Indians have brought to the trading post are at a far-away railway station. In a few more days the furs are in one of the big cities of Canada. Soon they are in the big warehouse of a fur dealer in the United States.

After about a week Yagoli and his family say good-bye to the people at the trading post and start back to their hunting grounds. They take enough food in the canoe to last five days. When this food is gone they must hunt for food and catch fish and pick berries.

Muli and Deti are sorry that they must leave the trading post. As the canoe moves through the water, the Indians sing a paddling song.

"Hi, hi, hi. . . . Hi, hi, he. . . . Hi, hi, ho," they sing, keeping time to the strokes of the paddle.

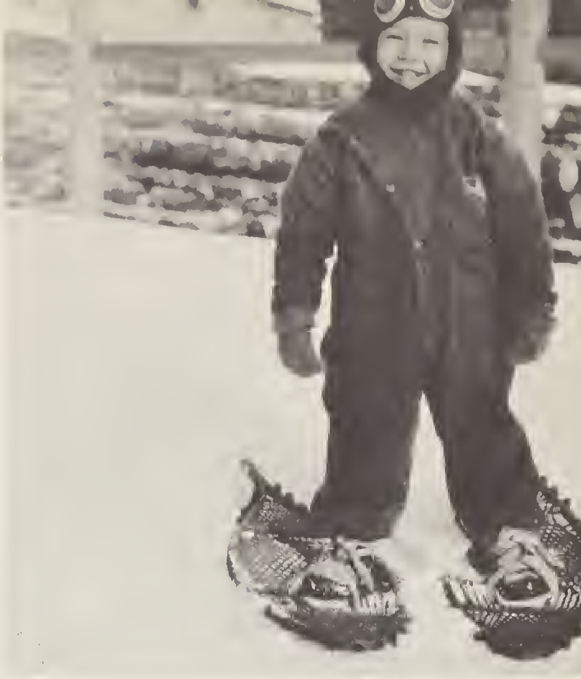
1. Explain the meaning of, "Furs are as money to the trappers."

2. If you were an Indian and had a bundle of fine furs, for what would you exchange them at the trading post?

3. Draw a picture showing a divide with a stream on each side of the hill.

4. Use your own words to write an explanation of a divide.

5. If you were Muli or Deti what would you want to buy at the trading post?



Bert Stoll

Notice how the snowshoes are made.

Some Things to Do

1. Here is a list of words and phrases used in the story of the forest Indians. Talk with your classmates about them and use them when you write or talk about Indians.

rifles	trading post
moccasins	toboggan
tepee	birchbark
caribou	traps

2. Use heavy paper or clay to make models of the following—
   a. canoe and paddle
   b. tepee
   c. snowshoe
   d. dishes and buckets

3. Draw a picture of a caribou. Under it write a list of the ways in which the caribou is useful to the Indians.

4. If you know someone who has hunted or trapped animals, invite him to tell your class about it.

A Short Quiz

Before the traders came, the Indians made the things they needed. Below is a list of things they used. Write at least one use for each.

a. wood
b. bark
c. flint
d. hide
e. sinew
f. bone

Monkmeyer

Chapter 10

Workers in the Great Northern Forests

The Miners

One day in early summer, after Muli's family have left for their hunting grounds, an airplane lands near the trading post. The plane carries two passengers and the pilot. The two passengers ask the storekeeper many questions. These men are not fur buyers. They are prospectors.

A prospector is a man who goes where he thinks gold, silver, copper, or some other metal may be hidden in the earth or in the rocks. He wants to find metal that he can sell. Every summer men may be found hunting for metal in almost any part of the Great Northern Forest. Prospectors can work only in summer. In winter everything is covered with snow and the earth is frozen.

These prospectors have found a place where the earth holds copper. They will open a copper mine there. They flew to the trading post to look for Indians who will work in their mine.

"We'll pay you high wages," they tell the Indians.

Most of the Indians say, "No. Rather hunt fur." But a few Indians, who have had no luck in getting furs, go with the prospectors.

Before men flew in airplanes, a prospector in the Great Northern Forest had to travel in canoes on rivers and lakes. If he traveled by canoe the prospector sometimes paddled for two weeks, then looked for metal for one week. Then he paddled two more weeks to get back to the place where he could buy food. Canoeing makes men so hungry that they need several pounds of food each day. These early prospectors carried flour, bacon, sugar, and tea with them.

They had to spend much time fishing, hunting, and picking berries. If the canoe upset, the prospector lost all his food and perhaps even his life. Many a man went away in his canoe and never returned.

The airplane can go farther in an hour than the canoe can go in a week. In an afternoon the airplane can take the prospector to his camping place with food, cooking things, tent, pick, shovel, ax, hammer, and rifle. There he can spend a month hunting for metal before his plane returns to carry him back. He saves time, but he must spend a great deal more money for the plane trip than for a canoe.

The two prospectors and the Indians soon reach the copper mine. They make their homes in log cabins. The Indians work inside the mine. They use picks, shovels, hammers, and dynamite to break the rock. Their work is to dig out rock that has copper in it. We call this copper ore. They pile the ore near the river where a steamboat brings supplies to the mining camp. When the steamboat goes down the river it takes the copper ore.

In winter when the streams are covered with thick ice, a tractor can run on the ice. A tractor pulling three sleds arrives at the camp with supplies. On its return trip the tractor and sleds can take the ore in two days to a railway station a hundred miles away.

In some places airplanes carry people and also mail and supplies to the mines.

The men who own the mine get money for their copper ore. They use some of the money to pay the Indians for working in the mine. Every week the Indians are given their pay.

"We go buy at post," say the Indians as they leave for a trading post.

Black Star

Prospectors open a rock to test for mineral deposits, and a worker watches the apparatus over a mine. The life of a prospector or a miner is a lonely one in this land of few people.

Black Star

The mining community is only a few cabins beside some lake or stream. The communities are far apart. It might take an Indian a week or even two weeks to walk from one mining settlement to the next one. In this long walk he would not see one person.

So, you see some people still live in this forest who get their living by the old, old way of hunting. Others work in the newer way of mining for metals. In all parts of this cold, snowy forest there are few people. Everywhere the people live far apart.

1. What does a prospector do?
2. What supplies must a prospector take with him into the forest?
3. How has the airplane made life easier for the prospector?

The Fire Fighters

Forest fires are the most terrible thing that happens in the forest.

Fires are bad for wild animals and for trees, bad for fur hunters, bad for men getting logs and pulpwood. The forest fire may burn small trees before they are big enough to be cut. It burns the leaves on the ground beneath the trees. Sometimes the flames leap up to the very tops of the evergreen trees. The whole tree turns into a great flash of flames higher than a house.

When this happens, it will be many years before there can again be trees on this place large enough to be cut for logs.

Fire is the greatest enemy of the lumberman. It is the enemy of all of us. Nearly everyone needs lumber. If a tree burns in the Great Northern Forest, that tree can never be used for lumber or paper.

In the southern part of the Great Northern Forest, many men and boys are busy every summer day. They work as a part of the fire-fighting army. Some watch for fires from tall towers. Some fly over the forest in airplanes.

A watcher in an airplane can look down on miles and miles of forest. He can see smoke even if it is many miles away. He will fly toward any place where he sees smoke. In a few minutes he is right above the fire. With his radio he calls the fire station.

"Hello, station! Send six men! Ground fire on the north shore of Lake So-and-so, one mile from east end. West wind blowing! Hurry!"

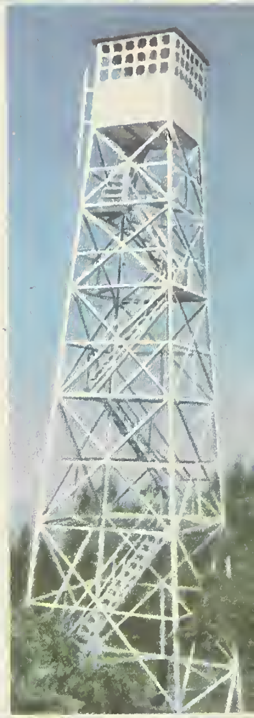
The fire station is about 20 miles away, but in a few minutes a plane has come. It lands on the lake near the fire. The men hurry out of the plane. They have a can of gasoline and a small engine with a pump. They set the pump on the ground. They unload a lot of light cotton hose. Quickly they fasten the pieces of hose together and start the engine. In a very short time they are pumping water hundreds of feet back into the forest. The engine keeps on pumping. The men carry water from the end of the hose in heavy cloth bags. They wet the pine needles and moss in front of the fire. Fire cannot burn wet things.

The fighters have a radio with them. They can call the fire station if more help is needed. In half an hour another plane lands on the lake beside the first one. It comes from a station about 70 miles away. The men from this plane work with shovels. They cover leaves and bits of burning wood with earth. They move the pine needles to make a clear path. Fire cannot cross a path like this because nothing has been left that fire can burn.

The men who came in the two planes fight the fire all day and all night. They

Watchers in planes look down on miles of forest, searching for any sign of smoke. Still other watchers in look-out towers are ready to send for fire fighters. But sometimes fighters are unable to control fires and many acres of trees are destroyed and valuable land is made useless.

U. S. Forest Service Photos



are very tired and hungry when they fly back to their stations the next morning. The fire has killed the trees on a place half a mile long and half a mile wide. But the fighters have checked the fire. They have kept it from burning many, many miles of forest.

Sometimes the wind blows hard while a fire is burning in the forest. Men can do nothing to stop such a fire. It may run on and on until there are no trees left.

1. In what way is fire an enemy of the fur hunter, the lumberman, and the prospector?
2. Tell how the use of the airplane and radio helps to save forests.

Lumberjacks

We have read about some of the things in the Great Northern Forest that men work hard to get. We have learned about fur-bearing animals and valuable metals. We also have seen how hard the fire fighters work. That is because the trees of the forest are themselves very valuable. From them comes the wood that is needed by everybody for all sorts of things.

Logs of spruce, fir, hemlock, poplar, and pine come by river from the forest to the paper mill.

At the southern edge of the Great Northern Forest in North America is a town we may call Log Town. There is a big sawmill here. Machines in the mill saw logs and make them into lumber.

There is another big mill in Log Town—a wood pulp mill. This mill has powerful machines that grind logs into very, very small pieces. We call the ground-up logs pulp. Pulp is used for making paper. The pages of books and of newspapers are made of wood pulp. Perhaps the paper in this book that you are now reading was made from a tree in the Great Northern Forest. Perhaps the tree was brought to one of the many pulp mills on the banks of the St. Lawrence River. These mills use many logs. The mills were put where they are because there are so many trees in the Great Northern Forest. There are also many rivers to float the logs from forest to mill.

Some of the farmers who live near the river go to the forest in winter to work at cutting down trees. When snow comes these lumberjacks, as they are called, leave their farms near the St. Lawrence River. Their families take care of the farms and the animals while the men are away getting money by working in the forest.

The lumberjacks go in trucks to a place in the forest where logs are to be cut. First they build themselves cabins of logs to live in. The cabins have bunks along the walls where the men sleep. A larger cabin is built to be used as a cooking and eating place. A number of cabins like this is called a lumber camp.

After a day of work with ax and saw in the cold forest, the men are glad to return to camp and eat a good, hot supper. They eat a great deal of bread and butter and biscuits. They have big dishes of meat and potatoes and gravy. They also have canned fruit, and prunes, and pies. The cook at a lumber camp is a very important person because the men need so much food.

Some of the lumberjacks cut down trees with big saws. Then they chop off the branches with their axes. They saw the logs into the sizes needed at the mills, big logs for the sawmill and smaller logs for the pulp mill. After the logs are sawed, other men drag them to the river with tractors or with horses and sleds. It is easy to drag logs over the snow. All the long winter more and more logs are piled on the bank close beside the river and on the ice in the river.

When spring comes and the days grow longer, the snow melts and the snow water runs into the river. Thick ice still covers the river, but the water from the melting snow makes the river rise. After the ice breaks up and floats away, the lumberjacks have an exciting time. They roll hundreds of logs into the rushing river. The river seems full of them. The logs float on the water. The river carries them many miles until at last they come to Log Town. Sometimes the logs pile on top of one another and keep other logs from floating down the stream. Then the men must walk from log to log to separate them.

At the sawmill, a piece of machinery drags a log from the water up into the mill. In the mill an engine drives the saws. A log is pushed against the saws, a man pulls some levers and the saws cut the logs into boards. In a few minutes other men are piling the boards in the lumberyard to dry.

Near the yard a ship is being loaded with lumber. The ship will go down the St. Lawrence River. Perhaps that shipload of lumber will cross the Atlantic Ocean. Or perhaps it will come to the United States. No matter where the ship takes it, the lumber will be used to build houses, barns, stores, or factories.

1. Here are ten steps in lumber work. Copy them in the order in which the work is done.
    a. dragging logs to river bank
    b. cutting down trees
    c. sawing logs into boards
    d. floating logs downstream
    e. chopping off branches
    f. sawing logs into different lengths
    g. using lumber in buildings
    h. piling boards to dry
    i. dragging logs to mill
    j. loading ship with lumber

Tractors push snow away from landings and skid roads and drag the logs over the snow roads.

Caterpillar Tractor Co.

Signal Corps

Corps of Engineers (below)

Road Builders

We saw that the lumberjacks had no road through the Great Northern Forest. We also saw how the prospectors used airplanes and boats to get to the mines. A road was needed from the United States to Alaska, so a highway was built.

The road begins at a place called Dawson Creek, in Canada. Dawson Creek is said to be "the end of steel." This means it is the end of the railroad from the land of farms and towns of southern Canada. The new highway begins at Dawson Creek and ends at the town of Fairbanks, on the Tanana River, in Alaska.

This road is 1671 miles long, and much of it goes through thick woods. As you know, the northern summers are very short. So the road had to be built in a hurry. Thousands of men, working day and night, built the Alaska Highway in one summer.

The men who were to build the road did not know where it was best to put it. But some Indian trappers who had hunted through this forest helped them. These Indians showed them the best way around the lakes, the swamps, the steep hills, and the high mountains.

This was not a nice place to work. There were so many mosquitoes, and deer flies, and horseflies, and black flies. There were little insects the Indians call "no-see-ums." The "no-see-um" is so tiny you cannot see him, but his bite burns you like the point of a hot needle.

The road builders did not have time to cut down the trees. They knocked the

The first step in building the Alaska Highway was surveying, deciding the course of the road. Then bulldozers knocked down trees and shrubs. Some of the logs were used to cover swampy spots.

trees down with big machines called bulldozers.

A man would drive his bulldozer right into the forest. The machine would knock the trees over and push them into piles beside the place where the road was to be. Another machine followed the bulldozer. This machine cut off the tops of small hills and carried the earth to fill up low places. In that one summer the men made two hundred bridges of logs across creeks and rivers.

Behind these workmen came a long line of trucks loaded with tools, machinery, gasoline, food, clothes, huts, and mosquito nets. The trucks brought everything the men needed for living and working in the woods. When one lot of road workers had built a few miles of new road, they moved their camp. Trucks moved over the new road with supplies for the new camp.

The men in charge of building the road went in airplanes from place to place along the way.

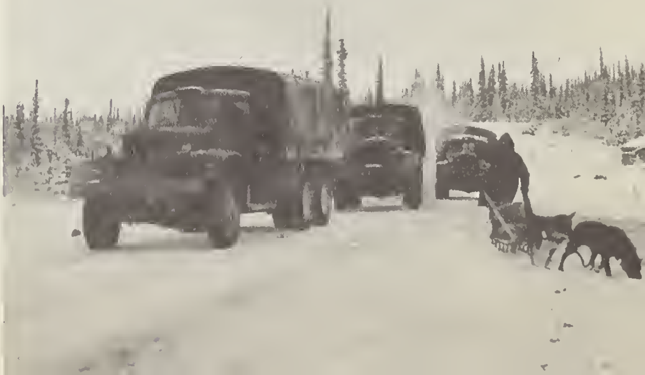
Sometimes the roadbuilders had roast bear for dinner. Sometimes they had delicious fish. The lakes and streams of the north woods have many fish.

In the evening the workers got news of the world by radio. They listened to music and enjoyed the fun that comes by radio. The men in one camp could talk to those in another camp by radio.

One day one of the young men who had not been there very long walked over a grassy place. He was surprised when the earth began to shake under his feet. Suddenly his feet broke through the grass. He sank up to his waist.

Caterpillar Tractor Co.

Nat. Film Board of Canada (above), Signal Corps (below)



The finished highway twists and stretches through mountain country, along and across rivers. A dog team pulls to the side as trucks roll by—old and new ways of travel on the Alaska Highway.

Black Star

Airplanes and river steamers provide transportation for workers and their supplies into the Great Northern Forest.

The young man had walked into a muskeg. A muskeg is a swamp filled with dead moss several feet deep. The moss may be mixed with a little earth that came in with muddy water. A muskeg is like a huge mass of thick jelly. Someone has said that a muskeg sticks like gum and slips like custard. Muskegs are often covered with living moss, grass, and small bushes, so that a stranger would not see them.

As his feet and legs sank, the young man called for help. But he was far from camp and no one heard his call. His clothes were soaked in cold water up to his waist. He knew that his body would soon be too stiff for him to move. He must get out of the swamp by himself, and get out quickly, or die there.

If he lifted one foot, the other foot went down farther. Then he saw a small bush that was just beyond his reach. He threw his body flat on the grass. He managed to grasp the bush with both hands. He tried to pull himself out by pulling on the bush. Instead of pulling himself out, he pulled the bush up. But in pulling at the bush he had moved his body forward a little. A larger bush was now within reach of his hand. He pulled on this bush. Slowly, very slowly he pulled his body out to the top of the muskeg.

He lay there panting for breath. He did not stand up because he was afraid his feet would sink down again. Slowly and carefully he rolled over and over. At last his body was on firm ground. The young man had learned something that every forest Indian knows from childhood. He had learned that he must be afraid of muskegs. There are hundreds and hundreds of muskegs in this great forest. Some are miles across.

In making the new highway many trucks and road machines sank into muskegs and had to be left there.

Because the highway had to be built in a hurry there was time only to make a road of soft, freshly dug earth. When rain wet the soft dirt the road became soft mud. Sometimes trucks got stuck in the mud. They had to wait until the bulldozer came to push them out. In some places the workers could not use trucks at all. They had to make sleds and drag the sleds with caterpillar tractors. The caterpillar tractor has big feet and can move over soft earth without sinking.

At last, after a great deal of hard work, the road was finished.

There is a plan to make the Alaska Highway a road that can be used both in summer and in winter. Perhaps you will go over it some day. You will find only a few towns along this long road in the forest. The towns will be small and far apart. There will be very few gardens in the forest. The summers are too short. Frosts may come in June and again in August and destroy the crops.

If you take this trip you will find hotels and rest camps at the edge of the woods along the road. But the land you drive through will still be a wild forest, the home of the caribou, the deer, the muskrat, and the fur hunter.

Perhaps sometime you will see this road from an airplane. From a plane you can see the whole of the Alaska Highway in less than a day. You will find many airfields in Alaska. You might stop at one of these fields on your way to another great forest.

1. Find Dawson Creek, Canada, on a globe or a map. Trace the route of the Alaska Highway to Fairbanks, Alaska.

2. What do you think will have to be done so that the Alaska Highway can be used both in summer and in winter?

Some Things to Do

1. Find a word in the story that means—
   a. a person who looks for metal
   b. an explosive to break rock
   c. rock with metal in it
   d. ground-up logs
   e. a swamp with dead moss

2. Find a story about prospectors in the rush for gold in California. Read or tell it to the class.

3. Write a paragraph about the important work of the fire fighters.

A Short Quiz

Copy the sentences below. Fill the blanks with words that make the sentences true.

1. Prospectors had to travel in ______ on rivers and lakes.
2. ______ take prospectors to their camping places very quickly.
3. There are ______ people in the cold Northern Forest.
4. Lumber and pulp mills are in the ______ part of the forest.
5. The ______ ______ is an important connecting link between the United States and Canada.

Signal Corps

Sovfoto

Chapter 11

The Cold Forest in Europe and Asia

The Taiga

You remember the ice cap in the far North and another larger ice cap in Antarctica in the far South.

You know about the Great Northern Forest.

Is there a Great Southern Forest? No, there is not. This is because almost all of Antarctia is an ice cap. There is no wide band of land for forest, no wide band for tundra.

The Great Northern Forest in which Yagoli lives is a very large forest. This cold forest country is longer than the United States is at its greatest length.

The other big, cold Northern Forest is spread across Europe and Asia. It is even longer than the Great Northern Forest of North America.

Suppose you had bailed out from an airplane in Yagoli's forest. Suppose you had bailed out somewhere over the Great Northern Forest of Asia or Europe. From what you saw you would not know in which of the two forests you had landed. In both forests you would see birch trees and evergreens. In both forests you would be bitten by the same kinds of flies and mosquitoes. You would see the same kinds of animals.

In both of these great forests the trees in the northern parts, near the tundra, are small. They are too small for making lumber. In the southern parts of the forests the trees are larger. There are lumber camps and sawmills and pulp mills in some of the southern parts of both forests. In the winter the lumberjacks of Europe and Asia do the same things that the lumberjacks do in the southern part of the American forest. They do the same things in the spring of the year, and the same things in the summer.

We have seen how ships carry lumber down the St. Lawrence River and across the Atlantic Ocean. In Europe ships carry lumber from mills on the shores of the Baltic Sea and the White Sea.

In central Asia the Russian people cut trees in the southern part of the forest. They get lumber to build houses in the farm lands that lie to the south of the forest. There are no trees in their farm land. In Canada also there is farm land without trees south of the Great Northern Forest. In Canada, and also in Asia and in Europe, the forest is a great help to the farmers who live in the neighboring land which has no trees.

There are very few people living in either the taiga or the North American forest. There are but few roads in either forest. The people can use boats only in summer. In winter planes land on the frozen lakes. The airplane is very useful in both of these northern forests. The people who live there make more use of the airplane than the people of any other part of the world.

In both forests airplanes carry travelers, fire watchers, fire fighters, prospectors, and miners. They carry valuable metal and repair parts for machinery. They also carry furs and medicines. Doctors use the planes and often the sick or injured people are taken to hospitals in them.

The people in Asia are building new highways into the taiga. But they have not yet built any road that is as long as the Alaska Highway.

There are many different groups of people living in the taiga. These people speak several different languages. For a long time, these people lived in the cold forest of Europe and Asia in almost exactly the same way that men lived in the cold forest of North America before traders came with supplies made in factories.

Today, like Yagoli, the forest people of Europe and Asia trade with other people. They sell their furs and with the money they receive buy some of the things they need.

As you know, this cold forest stretches almost around the earth. In it the birch tree grows and the people have used

Women lumberjacks, wearing spiked boots, help float logs down a taiga stream.

Sovfoto

Sovfoto

Lumber is being loaded with the help of a winch. Much of the lumber from the taiga is shipped through the port of Leningrad.

birchbark for a long, long time. So we may say that there is a ring of "Birchbark People" around the North Pole. On both continents these people have hunted caribou and other wild animals. They have lived in tents of caribou skin or reindeer skin or birchbark in much the same manner.

Changes are now taking place in these forest lands. Trains, tractors, trucks, and airplanes are coming. Men can change their ways of living in the Great Northern Forests. But no one is changing the life of the penguins and seals that live on the ice and in the sea around the South Pole.

Some Things To Do

1. Locate on a globe or a map the Northern Forest in Europe and Asia. Trace with your finger the band of forest that extends around the globe.

2. Add the word "taiga" to your list of geographical terms. Be sure to write its meaning in your own words.

3. Discuss with your classmates whether the taiga and the Great Northern Forest are alike or different.

A Short Quiz

1. List the three bands of land you have read about in this book.

2. Name four things that are bringing changes to the forest lands.

Stories You Will Enjoy

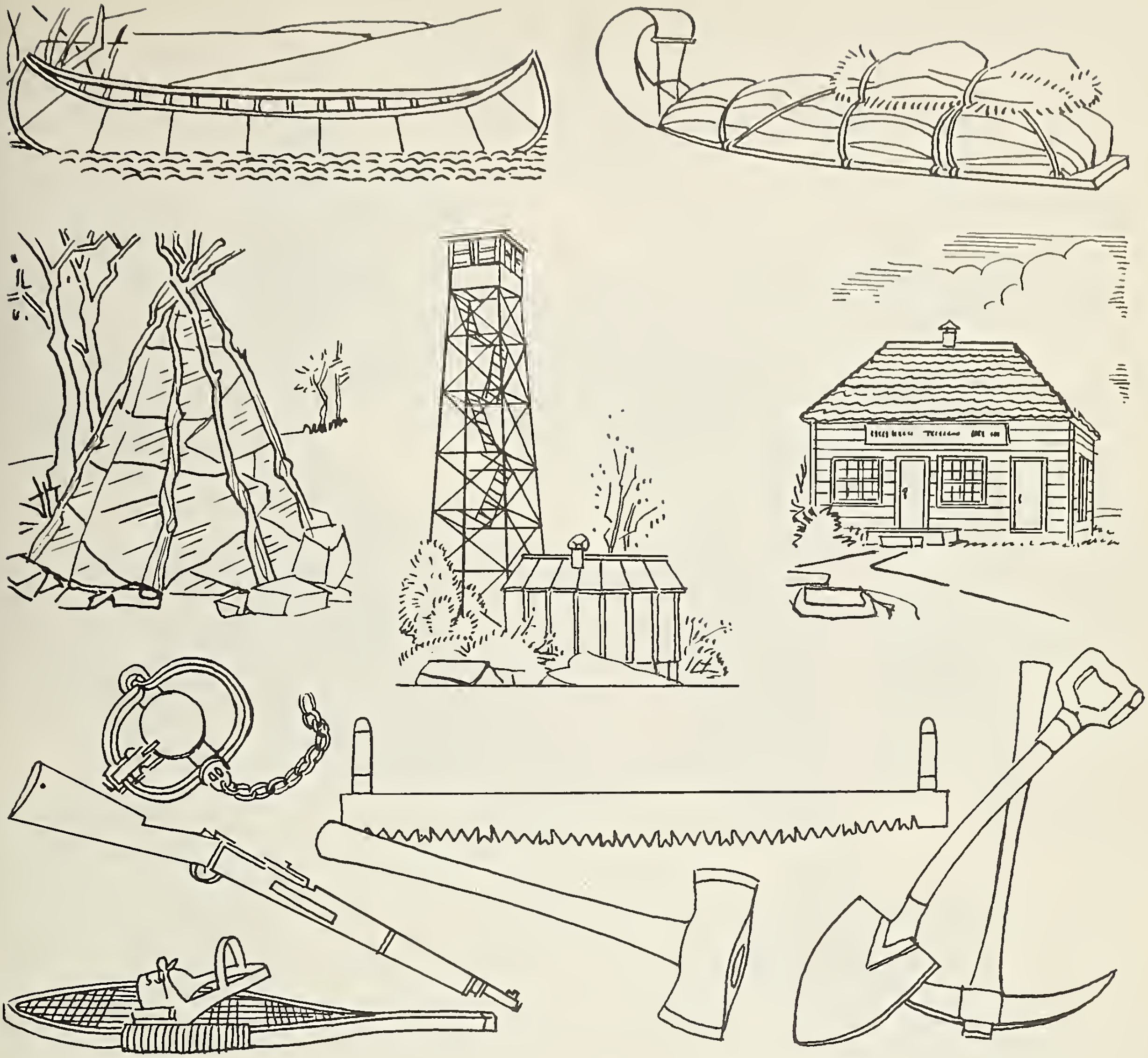
Red People of the Wooded Country by Mrs. Therése Deming (Osterheld); edited by M. B. Hillegas—A. Whitman

Diggers and Builders by Henry Bolles Lent—Macmillan

Fire! by Cliff Meredith—Reynal

Story Book of Earth's Treasures by Mrs. Maud Petersham (Fuller) and Miska Petersham—Winston

Lumber Camp by Glen Rounds—Holiday



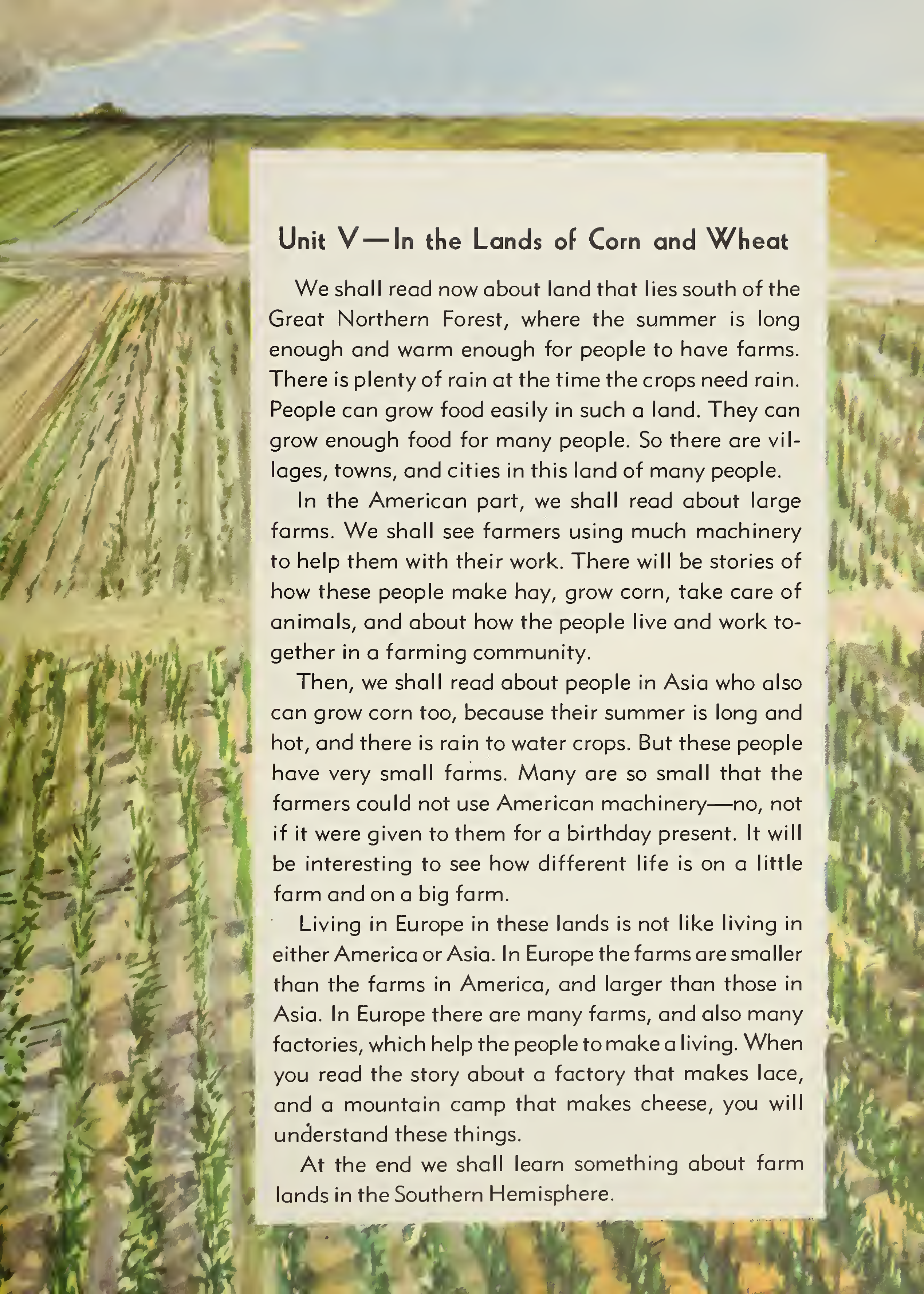
A Summary

1. Name each of the 12 drawings on this page. Write a paragraph to identify each item with living and working in the cold forests around the world.

2. Here are six statements about living and working in the cold forests. Give reasons to prove that each statement is true.
   - a. There are no gardens and farms in these forests.
   - b. Lumber and pulp mills are located in the southern part of the Great Northern forest.
   - c. The trading post is important to the Indians.
   - d. Some workers in the forest help other workers.
   - e. Few people live in the band of forest land in the continents of Asia and North America.
   - f. Men are making many changes in their ways of living in the Great Northern Forest.

3. Which of these forest workers do you think is the most important? Give reasons for your choice.

fire fighters
miners
lumberjacks
trappers
road-builders



Unit V—In the Lands of Corn and Wheat

We shall read now about land that lies south of the Great Northern Forest, where the summer is long enough and warm enough for people to have farms. There is plenty of rain at the time the crops need rain. People can grow food easily in such a land. They can grow enough food for many people. So there are villages, towns, and cities in this land of many people.

In the American part, we shall read about large farms. We shall see farmers using much machinery to help them with their work. There will be stories of how these people make hay, grow corn, take care of animals, and about how the people live and work together in a farming community.

Then, we shall read about people in Asia who also can grow corn too, because their summer is long and hot, and there is rain to water crops. But these people have very small farms. Many are so small that the farmers could not use American machinery—no, not if it were given to them for a birthday present. It will be interesting to see how different life is on a little farm and on a big farm.

Living in Europe in these lands is not like living in either America or Asia. In Europe the farms are smaller than the farms in America, and larger than those in Asia. In Europe there are many farms, and also many factories, which help the people to make a living. When you read the story about a factory that makes lace, and a mountain camp that makes cheese, you will understand these things.

At the end we shall learn something about farm lands in the Southern Hemisphere.

Pantagraph Photo

Chapter 12

Large Farms in Our Land

Spring on the Corn Belt Farm

The Jenkins farm is not far from the center of our country. This part of the country is sometimes called the Corn Belt. It is called the Corn Belt because nearly all of the farmers there grow corn. You might ride in an automobile all day long and there would be a cornfield on almost every farm you passed. Often there would be cornfields on both sides of the road. Corn is the most important crop that these farmers grow.

The Corn Belt is on both sides of the Mississippi River. It extends about as far north as the southern part of Lake Michigan. The winters in the Corn Belt are cold. The ground is often frozen hard. Snow often covers the earth for many weeks. However, winter here is not so cold nor so long as it is in the Great Northern Forest.

The summer in the Corn Belt has many weeks of warm weather. Usually it rains every few days during summer. This warm weather, with showers, makes corn, grass, and other plants grow well. The people can have farms and gardens. They can grow many kinds of crops. In such a land there can be much food and many people. There can be towns and cities as well as villages and farms.

The Corn Belt has many more people than the Great Northern Forest has.

It is now springtime on the Jenkins farm in the Corn Belt. The days are getting longer. Snow is gone. The sun shines brightly. The farmers are starting their spring work.

During the winter Mr. Jenkins has carefully put all of his machinery in good order. Now he fastens his tractor to the disk harrow. As the disk goes across the field where there was corn last year, each of its little round wheels cuts into the ground. Their sharp edges dig into the ground and turn it over. This makes the soil soft and fine, ready to receive the seed for the oats crop.

Mr. Jenkins plants one kind of grain in a field one year and another kind the next year. This gives the soil a change and makes better crops. We call it rotation of crops.

He plants the oats crop first. This is because the oat plant does not mind a little frost.

While Mr. Jenkins is planting oats, his sixteen-year-old daughter, Sue, and his young son, Ned, start their spring work with the chickens. They buy a lot of chicks with money they have saved. A neighbor who lives nearby sells baby chicks. He has several incubators where the eggs are kept warm by electricity until the chicks come out of the eggs. Then the man sells the baby chicks.

By September Sue and Ned's chicks will have grown almost to full size. Some will be taken to market. Others will be kept to lay eggs for a year or two. Then the chickens will be used for food.

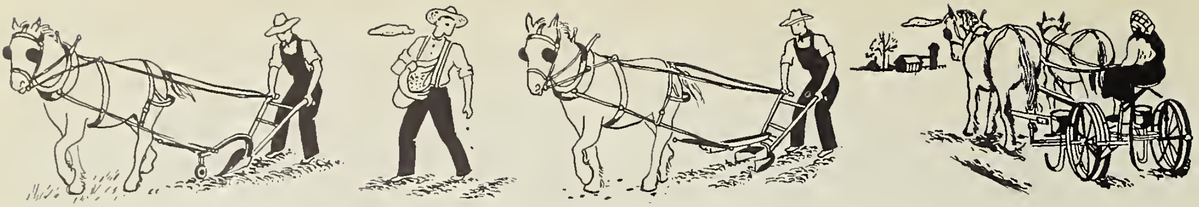
Sue and Ned get a share of the money from the sale of chickens and eggs. But most of the money is used to buy the food that is not grown in the family garden.

When Mr. Jenkins has finished planting oats, he plows the garden and makes the soil ready to receive young plants and seeds of vegetables. Mrs. Jenkins does most of the gardening with the help of Sue and the boys. Several times during the summer Mr. Jenkins brings a horse to the garden. The horse walks between the rows of vegetables and draws a cultivator. This kills weeds between the rows. It is a great help to Mrs. Jenkins and the children.

The family eats food from the garden every week in the year. In early spring

A tractor pulls a disk harrow across last year's corn field. The bits of corn plants are plowed into the ground to help fertilize the soil for this year's oat crop. Why do farmers rotate crops?

J. I. Case Co.



they have radishes and lettuce, mustard greens, and spinach. They have early peas and late peas, snap beans, Lima beans, beets, carrots, cabbages, tomatoes, and pumpkins for pie. The Jenkins family eats fresh garden vegetables all summer. When Thanksgiving comes, Mrs. Jenkins and Sue can show you rows and rows of jars of canned vegetables and canned fruit in their fruit cellar. The family enjoys eating these good things in winter. There are pumpkins, cabbages, potatoes, and apples stored in a cool room in the cellar.

After the danger of frost is past Mr. Jenkins plants corn. He plows last year's hayfield for this year's cornfield. This is a very busy season. Besides doing her housework as usual, Mrs. Jenkins drives the corn planter for a few hours each day.

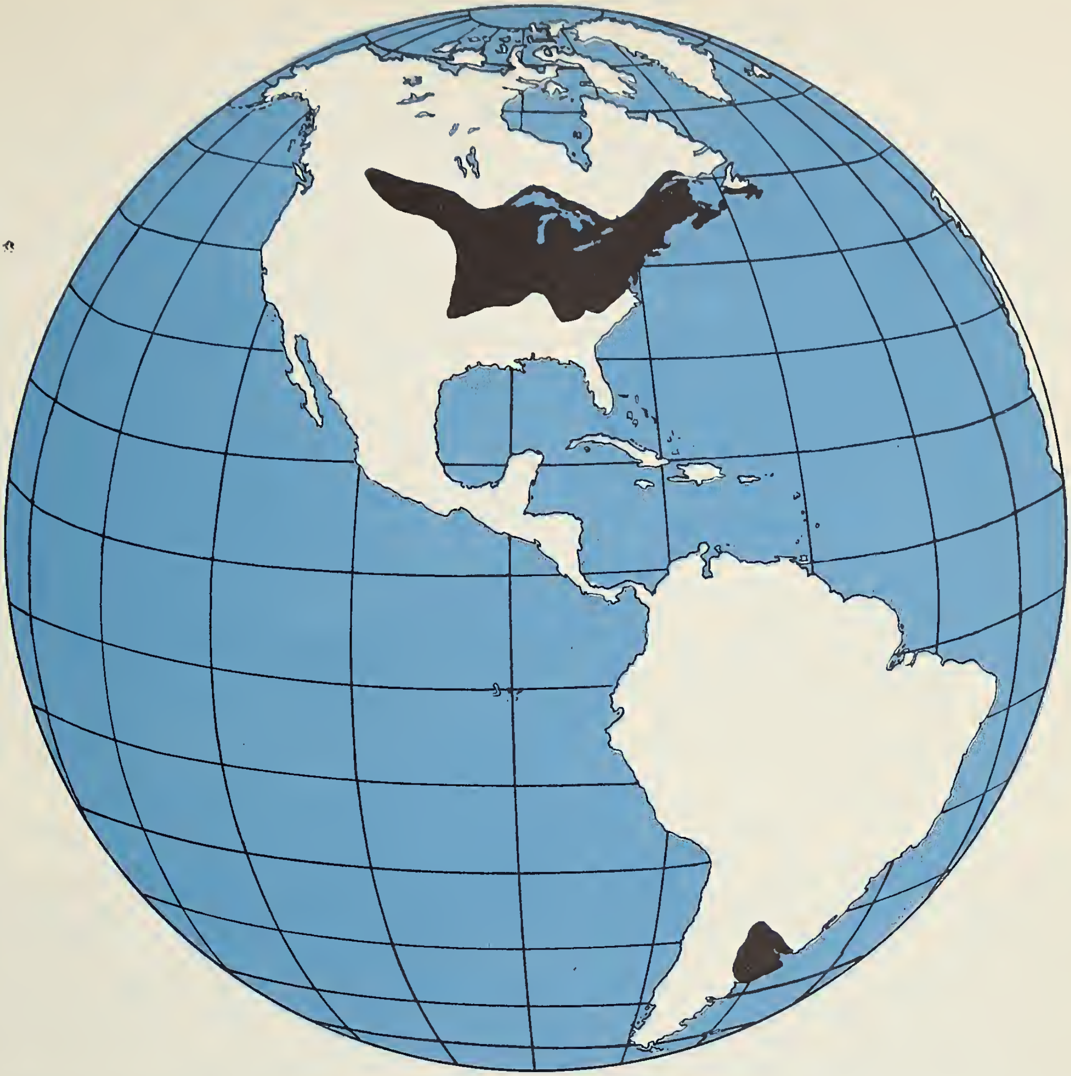
Mr. Jenkins' grandfather planted corn more slowly. When he planted corn, one man opened a furrow, another man dropped the seed by hand, and a third man covered it. The three of them planted one row of corn. Mrs. Jenkins rides the corn planter around the field and plants two rows of corn at once.

1. On a globe or a map, point to the Corn Belt in our country.
2. What work does each member of the Jenkins family do in the spring?

Summer with the Jenkins Family

It is now June. The corn has started to grow and the plants are knee high. Mr. Jenkins uses a machine called a cultivator to kill the weeds. Weeds must not rob the corn plant of water. Every farmer knows that if weeds get the food and water, the corn plants will be smaller than they should be, because they have been robbed.

While Mr. Jenkins uses the cultivator, his son, Harry, starts the haymaking. Harry is a high school student, but school has now closed for the summer. Harry cuts grass with a mowing machine. After the cut grass has dried for several hours in the sun, we call it hay. Harry fastens two horses to a machine called a hay rake. The hay rake puts the hay into rows called windrows.



The areas of Corn Belt land in North America are larger than those in South America. Compare the location of the corn and wheat lands with the location of the cold forests and of the tundra land.

Galloway *Parks from Standard Oil Co. (N. J.)*

Next the horses draw the wagon that pulls a hay loader. Sue likes to drive the horses. As the wheels of the hay loader turn around they work some large steel fingers. These steel fingers pick up the hay from the windrows and lift it onto the wagon. Mr. Jenkins stands on top of the hay in the wagon. He spreads the hay with his fork.

All this time Harry is cutting more grass for the sun to turn into hay. We say that the sun cures the hay.

When the wagon gets to the barn, Sue takes her father's place and sticks the fork into the hay that is on the wagon. Ned, who is ten years old, leads a horse. The horse pulls a rope that lifts a bunch of the hay into the barn. It is stored in the barn for use during the following winter.

June and July are the busiest months on the Jenkins farm and on thousands of other farms in the Corn Belt. The people work long hours at this season. The corn needs to be cultivated. The hay and oats need to be cut. There are many cows to be milked in the morning and again in the evening.

The Jenkins family has milk and cream for its own use. Every other day, a truck stops to take the rest of their cream to the creamery, or butter factory, in the town. The pigs, calves, and

Compare this modern method of cultivating corn with grandfather's horse-drawn cultivator.

J. I. Case Co.

chickens on the Jenkins farm get the skim milk.

Mr. Jenkins and Harry are milking at five-thirty on summer mornings. They plan to be at work in the fields by seven o'clock. Mr. Jenkins has automobile lights on his tractor. On several nights each summer, for two or three hours after supper, he can cultivate the corn and also the rows of vegetables in the garden.

Now it is time to harvest the oats. Mr. Jenkins uses a combine, a machine that does many things at once. The combine cuts the oats plants and beats out the grain. It drops the grain into a wagon that follows beside the combine. It drops the stalks on the ground.

Mr. Jenkins is one of five farmers who own this combine. They take turns using it to harvest oats and wheat.

A part of the oats crop is stored in the barn. A part is taken from the field to the grain elevator in town to be sold. A grain elevator is a building where grain is stored.

When August comes, the rush is over at the Jenkins farm. The hay is in the barn. The oats crop is gathered and part of it is sold. The corn has been cultivated. Nothing more will be done to the corn until it is ready to be gathered in autumn.

This is vacation time in the Corn Belt. The Jenkins use their automobile for some pleasant trips. One day they go to the county fair. Farmers bring their best crops and livestock, or farm animals, to the county fair. Prizes are given to the farmers who have the best animals and crops. People who have farm machinery to sell bring it to the

Why do ranchers send cattle and hogs to the Corn Belt to be fattened?

Harold M. Lambert

O. V. Gordon

Chickens mean food to the Corn Belt farmers.

fair so that the farmers can see it. Mr. Jenkins is thinking about buying a new tractor, so he looks carefully at several kinds of tractors.

The family goes also for a four-day trip by automobile. They visit Mr. Jenkins' brother who lives in another state. While they are gone, the horses eat grass in the field and a neighbor milks the cows and feeds the chickens. The next week Mr. Jenkins and Harry milk the neighbor's cows while the neighbor and his family take a trip.

1. Why are weeds and corn enemies?
2. Why are June and July the busiest months on farms in the Corn Belt?
3. How do the Jenkins family and their neighbors help each other?

The Farm in Autumn and Winter

One morning early in September, the school bus comes along the road. Sue, Harry, and Ned get in. There are already several children in the bus. It is filled by the time it arrives in town.

Ned is in the fourth grade. Harry and Sue are in high school. All are in the same big building. Their school is a consolidated school. Pupils come to it from as far as 10 miles away. It takes six large busses to carry them back and forth.

Every day before going to school, Sue puts up lunches for herself and the boys. She also feeds the chickens. In the afternoon, when school is over, the children gather the eggs. Then they give the chickens their supper and shut them up for the night. Harry helps with the milking and feeds the horses.

Frost comes in October. The corn is no longer green. The long leaves and the stalks are yellow. The ears of corn are ripe and dry. The corn is ready to be picked.

The tractor pulls the corn picker and also the wagon. When the wagon is loaded with corn, Mr. Jenkins fastens the tractor to the wagon and takes it to the corncrib. This is a building used for storing corn. He puts many loads of corn into the corncrib. He will feed cattle and pigs with the corn he has grown.

About this time, Mr. Jenkins buys forty young cattle. They come from the ranch country to the Jenkins farm. The ranch country is west of the Corn Belt. Grass grows in the ranch country, but not much corn grows there. Every fall cattle are sent from the ranches to the Corn Belt to be fattened by eating corn.

Mr. Jenkins also buys some young pigs. Every morning and evening he feeds the pigs and the cattle. They eat all the corn that Mr. Jenkins has put into the corncrib. They eat most of the hay he has stored in the barn. Cattle and pigs have such big appetites! Some of the straw from the oats is put down for the animals to sleep on.

When midwinter comes, the pigs have grown big. They are fat hogs now. Mr. Jenkins takes them in a truck to the railway station five miles away. There the hogs are put into a freight car. The next day they arrive at a meat-packing plant in a city. A meat-packing plant is a large building where fat meat animals go in at one end and carloads of meat come out at the other end. In a week or ten days after Mr. Jenkins' pigs go to market, they may be sold in places far away as pork chops and fresh hams.

There are two fields of grass. The grass of one field is made into hay. The other grass field is pasture for summer. The cows eat grass in the pasture while the Jenkins family is busy working with corn and oats and hay, and with the garden. Mr. Jenkins is glad that the cows feed themselves at this busy time.

Every year Mr. Jenkins hopes for good rains so that he may have a large crop of corn. Every year he hopes that he may get good prices for his cattle and his hogs. If he has a large crop and good prices, he has enough money to buy the many things the family needs.

Mr. Jenkins does not have trees on his farm that can be made into lumber. He has to buy lumber to build his house and farm buildings. So he uses some of his hog and cattle money to buy what is needed from the man who makes lumber from the trees in the forests of the United States and Canada.

Mr. Jenkins also uses some of his cattle and hog money to buy coal with which to heat the house and cook the food. If he has good crops and gets fair prices, he has money to help pay for the car, the tractor, the wagon, the corn picker, and other machinery. He can buy paint for the farm buildings and have a new roof for his house or barn.

Tenn. Dept. of Agriculture

Fruit and vegetables are stored for winter months.

There are stores in the town and there the Jenkins family buys many, many things. With money they get from selling hogs and cattle and cream, they buy hats and shoes, books and pencils, bedclothes and cooking pans, brooms, and many other things they need. Mrs. Jenkins and Sue may buy winter coats, and the boys are always growing out of their clothes, just as you are. It takes so many different kinds of things to feed and clothe a family and to keep the house, farm, and machinery in order.

This farm land with hot summers and cold winters is large, very large. It extends more than halfway across North America. Some of it is in the United States and some is in Canada. The Jenkins farm is one kind of farm, but there are many other kinds of farms. Some farmers do not keep many cattle or hogs. They sell nearly all of their corn and oats. Perhaps you eat some of the oats as oatmeal.

Some farmers in this land of hot summers and cold winters have a barn full of cows and sell nothing but milk. We say that such a farm is a dairy farm. If there are many dairy farms we say there is a Dairy Belt. You remember that many corn farms make a Corn Belt. On some of the largest farms the farmer grows nothing but wheat. Wheat is very important to us because every family eats bread that is made from wheat.

When you go to the grocery store to buy food, you may remember your neighbors in this land of farms.

1. If Mr. Jenkins has a large crop of corn and gets good prices for his cattle and hogs, what will he buy?

2. Why are cattle brought from the ranch lands to the Corn Belt?

3. Name the kinds of farms that can be found in the land of hot summers and cold winters.

Some Things to Do

1. Use each of these words and phrases in a sentence to show its meaning—

furrow
windrow
corncrib
grain elevator
creamery
rotation of crops
consolidated school

2. Write a paragraph telling about the season of the year you should like to visit with the Jenkins family.

3. Find a story about a wheat or a dairy farm. Make a list of all the kinds of work and play that are the same as those on the corn farm. Make another list of any different kinds of work and play.

4. Write the names of six kinds of machines used on the farm. Tell the class about one of the machines.

5. Write a paragraph explaining how warm weather and rain help the corn crop.

A Short Quiz

Following are sentences about the Corn Belt farm that have been cut in two. Copy the first part of the sentence from the column at the left and complete it by choosing the correct ending from the column at the right.

1. The Corn Belt has many more people than the Great Northern Forest has because
2. The oats crop is planted first in the spring because
3. The summer sun is used to help with haymaking because
4. Every fall cattle are sent from the ranches to the Corn Belt because
5. A farmer hopes for large corn crops and good cattle prices because

a. they can be fattened for market.
b. the plant does not mind a little frost.
c. food for many people can be grown here.
d. he will have enough money to buy the things the family needs.
e. it dries the freshly-cut grass.

C. N. S. from Guillumette

Chapter 13

Small Farms in China

The Ling Family

Far, far from Mr. Jenkins' farm there is another part of the world where corn can grow well. This is in China, in the eastern part of Asia. It is almost on the other side of the world.

In the eastern part of China there is a river called the Whang. The land near this river is much like our Corn Belt. The surface is level. The soil is rich. The summer is long and warm. There are many showers in summer. The weather is much like the weather in the Jenkins neighborhood. Chinese farmers grow corn on this land.

This part of China has many people, so many that there is not enough land for one family to have a large farm. But there are many small farms.

A Chinese farmer, named Mr. Ling, has a farm in this part of China. In a corner of Mr. Ling's little brick house there is a closet. On a table in this closet are forty little pieces of wood. These little pieces of wood are just about 2 inches wide and 5 inches high. The Chinese call them tablets. Each tablet has the name of a man written on it in the Chinese language. One name is that of Mr. Ling's father. Another tablet has the name of Mr. Ling's grandfather. On another is the name of his great-grandfather, and so on for many great-grandfathers. All of the men whose names are on the forty tablets have lived, one after the other, on this same farm. Mr. Ling keeps these tablets to honor the memory of his family. Chinese people are careful to remember those of their family who lived long ago.

The Ling farm was a large farm several hundred years ago when the first

Ling lived there. The first Mr. Ling had three sons. His sons divided the big farm into three smaller farms, so each son had one farm. The family kept dividing the farm among its sons until the land could not be divided any more. If it were divided again, a family could not make a living on such a small piece of land.

1. In which continent is China?
2. Locate China on a globe or map. Point to the Whang River.
3. Why are the farms in China so very small?

Mr. Ling's Farm in Summer

We visit the Ling farm in midsummer. Mr. Ling shows us rows of beans, beets, cabbages, sweet potatoes, and other vegetables in his garden. He has plenty of cabbage. The Chinese use much cabbage. Mr. Ling has cucumber vines climbing up poles because vines take up less room on poles than on the ground. Every inch of earth is precious where food for so many people must be grown on such small farms. We see some pumpkin vines climbing the apple trees in the Ling dooryard. To save room on the ground, a pumpkin vine runs over the roof of the house. Several pumpkins are ripening on the roof. In China a farmer finds many ways to grow as much as possible on little land.

There is not a weed to be seen in the Ling garden. Almost every day Mr. Ling or Chang, his son, rakes the ground with rakes and forks. This kills every weed the moment it pushes its first leaves above the ground. The earth is as soft as meal. The soil is very rich.

As we know, weather and the soil at the Ling farm are very much like those at the Jenkins farm. But the farm business is very different. Mr. Jenkins has much land. He grows many crops and sells them. With the money he buys machinery, gasoline, oil, and other things that he needs.

Mr. Ling grows crops, too, but the family uses nearly all that they can grow. Mr. Ling does not sell much, and he does not buy much. The Lings work hard in order to have enough food to keep in good health.

Mr. Ling's fields are so small that he could not use the Jenkins machinery. He has so little to sell that he could not get the money to buy machinery even if he wanted it. He has a cart and a cow that pulls the cart. He has a small plow and some shovels and hoes and rakes.

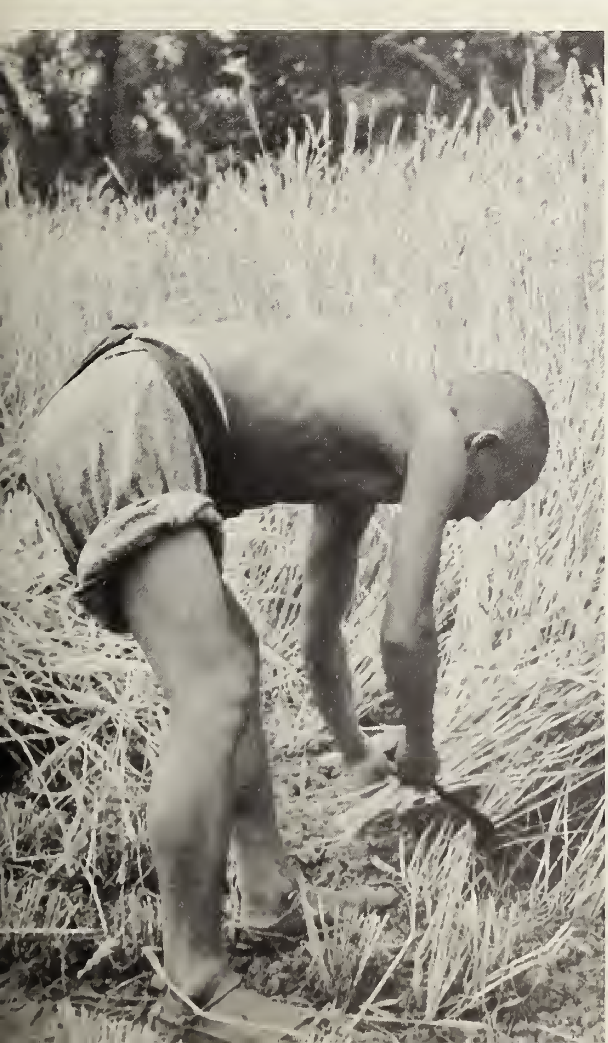
When Mr. Ling's wheat is ripe, he cuts it with a long, curved knife, called a sickle. He cuts the wheatstalks a handful at a time and drops them on the ground. His son, Chang, his wife, or his daughter, rakes the stalks of wheat into piles. Then they take a handful of wheat and tie it into a bundle to make a sheaf.

The next day the cow pulls the cart loaded with sheaves of wheat to the house. There they set up the sheaves to dry. Mr. Ling cannot leave his wheat in the field to dry, because he must plant corn there just as soon as the wheat is cut. Mr. Ling grows two crops each year on his land.

He must plant the corn quickly because corn must have time to ripen before frost comes and kills the plants. So Mr. Ling plows, and Chang and his mother beat the lumps of earth with hoes to make the ground soft.

Early in May Chinese farmers harvest and thresh the wheat crop, then plant corn in the same fields. Why is farm machinery little used in this country?

Orient & Occident (top), C.N.S. from Guillumette (bottom)



Metro-Goldwyn-Mayer

The wheelbarrow often is used to carry people and goods in China. What other kinds of transportation are used in China?

The Lings plant two kinds of corn. One is American corn, much like that which Mr. Jenkins grows. The other is a kind of Chinese corn which we call sorghum. The grains of sorghum are smaller than the grains of our corn, but the stalks are tall like our cornstalks.

Mrs. Ling and Chang plant the corn with hoes. While they do this, Mr. Ling takes the plow and the cow and goes to plow the field of a neighbor. The neighbor's farm is so small that he cannot keep a cow. He gives Mr. Ling a part of his corn crop to pay for the plowing that Mr. Ling and the cow do for him.

Some of the neighbors are too poor to own a cow and too poor to give a part of the crop to hire a cow. These farmers have to use a spade to get their fields ready for planting. Mr. Ling is called a "rich" farmer, because he has a cow to pull his cart and plow.

The farmer who has to spade his field for planting has no cart to carry his wheat from the field. He uses the wheelbarrow or the carrying pole.

When it is time to thresh the wheat, the Lings take it in their hands and beat the heads of wheat against the side of a basket. The grains fall inside the basket. This is much slower than Mr. Jenkins' combine—oh, so much slower—but it costs no money. Mr. Ling made his threshing baskets himself from willow twigs.

As we know, Mr. Jenkins uses a tractor to cultivate his corn, so he can cultivate many rows at one time. Mr. Ling's cow and plow must make two trips across the field to cultivate one row of corn. After the little field has been plowed, Chang and his sister pull up any weeds that the plow has not turned under. They carry the weeds home for the pig to eat. Nothing must be wasted on this Chinese farm—not even a weed.

Trees take up space. So the only trees allowed on the Ling farm are the two willow trees for making baskets, and two peach, pear, plum, and apple trees to give fruit.

When Mr. Ling plows his wheatfield in early June, he plants a part of the field to corn and a part to beans—soy beans. Mr. Ling cares for his soy-bean crop in much the same way that he cares for his corn crop. Soy beans are one of the most important crops in this part of China. The beans are good for men to eat. The leaves are good for the cow. Mrs. Ling burns soy-bean stalks as fuel to cook the rice. The roots of the soy bean feed the land. The next crop will be better because of the bean roots.

People from our country went to China and saw how useful soy beans were. They brought seed beans from China to this country and now we are growing soy beans. Many of Mr. Jenkins' neighbors grow soy beans. Mr. Jenkins expects to grow some next year. They have now become a very important crop in our Corn Belt.

The Chinese people use soy beans for food in at least four hundred different ways. Here are just a few of the ways. One is to make soy-bean milk. To do this, Mrs. Ling grinds the beans in a little water. This makes a liquid that is as white as milk. Soy-bean milk does about the same things for a person's body that cow's milk does. Mrs. Ling can make soy cheese from the milk. She also presses soy beans to get oil out of them. For thousands of years the Chinese have been using this oil as we use butter and cooking fats. They also make soy-bean sauce. They put this sauce on other foods to make them taste more like meat.

Many Chinese are well-fed without eating any meat at all for weeks, or even months at a time. They eat soy beans and soy-bean cheese in place of meat, and soy-bean oil instead of butter and bacon. In place of bread or potatoes, the Chinese eat rice, or wheat noodles, or millet. Millet is a kind of grain somewhat like oats.

Mr. Ling loves his good earth. His eldest son has gone to the city to learn to be an airplane mechanic. But Mr. Ling wants to stay on the little farm where his family has lived for nearly a thousand years. The Lings like their neighbors and their neighbors like them. Mr. Ling is the head man of the village in which he lives.

The head man of a Chinese village is one who helps the people to get along together. Mr. Ling is honored by the village people even though his farm is so

Sitting in the warm sunshine, these women of China make shoes and coats for their families.

Triangle

small that it would fill only a corner of one of Mr. Jenkins' big fields.

1. Why does Mr. Ling have cucumber and pumpkin vines climbing poles instead of trailing on the ground?

2. Give four reasons why soy beans are one of the most important crops in China.

A Chinese Village in Winter

There are forty families in Mr. Ling's village. All the people are farmers. Each day they go out from their homes to work in the fields. Their little farms are spread out around the village. The farms are so small that it is not a long walk from the village to the fields.

If you were to put all the farms of the village together, the whole of them would not be larger than the Jenkins farm. The next village of farmers is so near to Mr. Ling's village that you can hear the dogs bark and the roosters crow. You can hear the people of the next village calling to each other.

We wonder how the village people get the money they need, so we ask Mr. Ling what he has to sell.

"We have nothing that we can sell except the calf," says he. "We expect the cow to have a calf every year and we sell that."

"What about your corn, wheat, and beans?" we ask.

Says Mr. Ling, "We eat the wheat and the beans, and some of the corn. The pig eats a little of the corn. The cow eats the straw, corn leaves, and bean leaves, and a very little of the corn. We burn the cornstalks and the beanstalks to make a fire for cooking. By the time we have fed ourselves, the cow, and the pig, there is nothing left to sell unless the crops are very, very good. We do not sell the pig. Every Chinese family plans to have a nice, fat pig for the feast at the New Year."

"How, then, do you get the money you need?" we ask Mr. Ling.

"We do not have much money," he replies. "The only way we have of getting money is to work for someone who will pay us for it."

The people of Mr. Ling's village cannot buy many things. But they buy a little cotton yarn made in the factories. The women make the yarn into cloth on hand looms. They make clothes of the cotton cloth.

We say to Mr. Ling, "Surely it is harder work to make cloth on hand looms than to make it in a factory by machine."

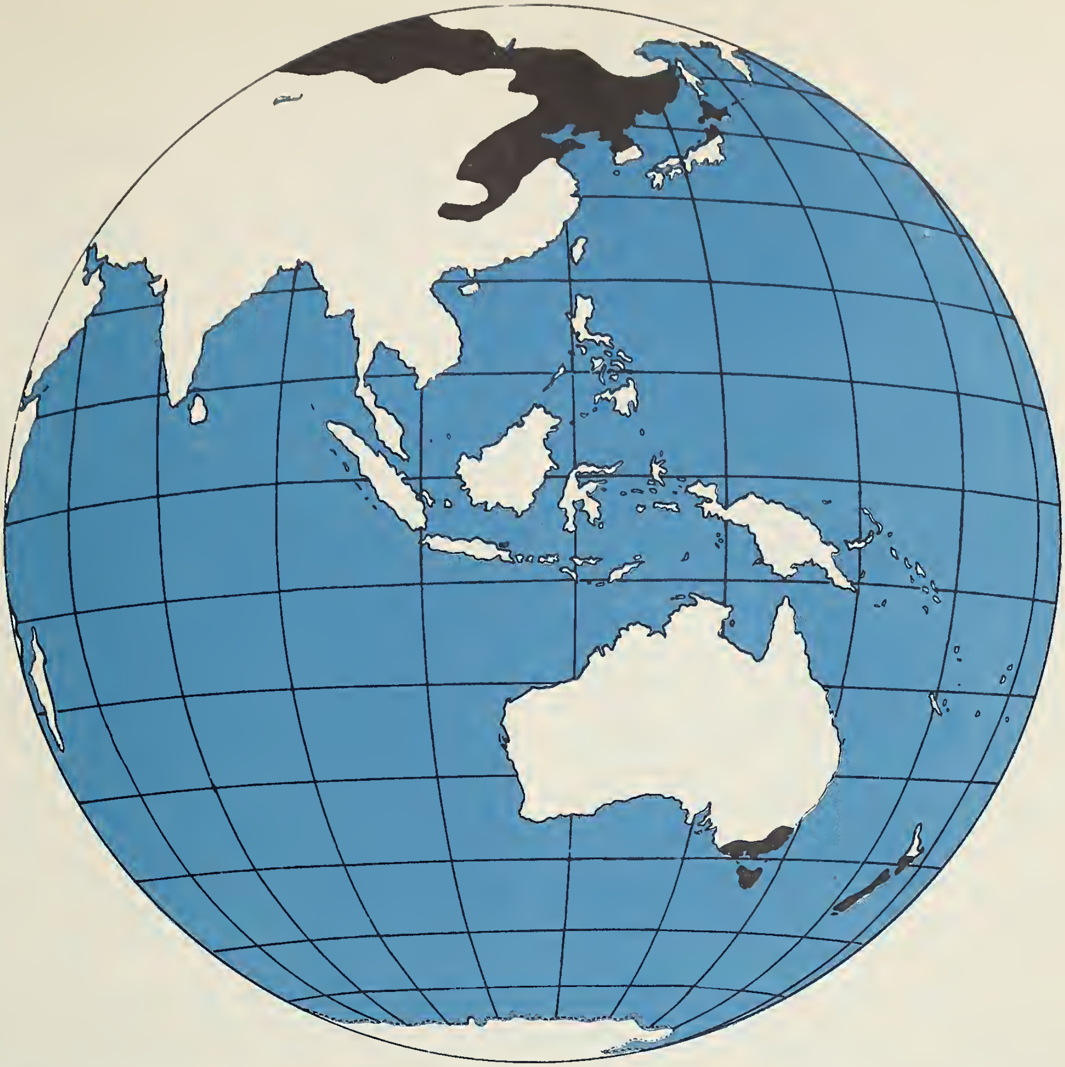
Mr. Ling answers, "Yes, that is true. But it takes money to buy cloth that is made in a factory. As you already know, we have almost no money."

Every winter thousands and thousands of Chinese farmers' wives work at weaving. They weave in their own homes. The woman pushes a treadle with her foot. Clack, clack! goes the hand loom as the shuttle goes back and forth. Every time the shuttle goes across it adds one more thread to the long, narrow strip of cloth in the hand loom.

The Chinese farm woman also makes shoes of cotton cloth. When clothing has been worn to rags, the pieces can still be used for shoe soles. The women sew many layers of old cloth together to make the sole of a shoe. The top of the shoe is made of a piece of new cloth which is sewed firmly to the sole.

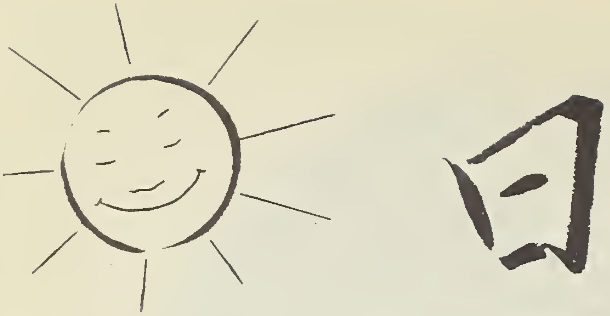
"Why don't you wear leather shoes?" we ask.

Mr. Ling says that leather is made of hides, and hides come from animals. Chinese people do not have room on their farms to grow food for many animals.



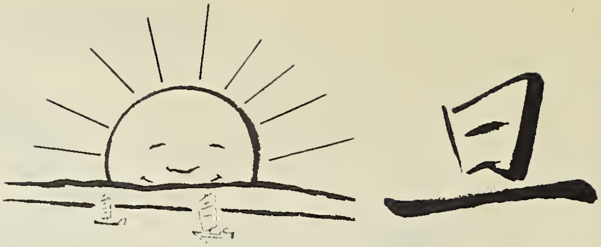
The land in Asia with weather suited to grain crops is crowded with many, many people. Chinese farmers spend long hours at hard work to get the most food possible from their tiny farms.

Keystone View Co.



Viking Press

The sun is sketched to form JIH, "sun."



Viking Press

The sun on the horizon gives DAN, "hour of dawn."

Winter is a cold time in Mr. Ling's village. There is little fuel. Many of the houses are not heated very much. The people use sun heat all they can. There is a great deal of sunshine in China in winter. That is lucky for the people. The houses are often only one room wide with the long side toward the south. When you sit on the south side of the house, you are out of the wind and you are in the sun. On bright, sunny days, Mrs. Ling and her neighbors, and thousands of other Chinese women sit on the sunny side of their houses and sew and do other handwork.

During the winter there are two merry times in China. The first and greatest is New Year. The day before New Year is the time for everybody to pay his debts if he can possibly do so.

On New Year's Day, soon after daylight and before the sun is up, everyone in the village is shooting firecrackers. There is much noise.

Early in the day Mr. Ling and all the family greet Grandmother and bow before her. She is honored because she is the oldest one in the family. The Chinese are very kind to old people.

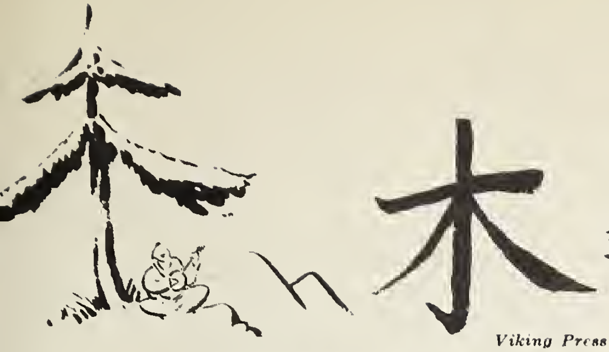
If there are any new clothes to be had during the year, New Year's Day is the time to wear them. If the family is going to have any very good food, New Year is the time to eat it. Their pig will be the New Year's feast for the Lings. With the pork they have rice and greens, perhaps beans and cabbage. There may be oranges for the children, and candy and cakes. The people visit their friends, and feast or rest. Everyone has a good time at Chinese New Year.

Chang and all the other boys in the village make lanterns. The lanterns are little frames of bamboo tied together with string and covered with paper—red, white, and yellow paper. Some lanterns are made in the shape of a fish, some in the shape of a dog or a deer.

The men and boys of the village make a large, paper dragon for the evening parade. Some of the dragons are 50 feet long. To make the dragon, they cover a framework of bamboo sticks with paper. The frame, covered with paper, rests upon the heads and shoulders of several men and boys. The men walk, carrying the dragon on their heads. They walk along the streets in all sorts of crooked ways to make the dragon wriggle back and forth, like a dangerous animal.

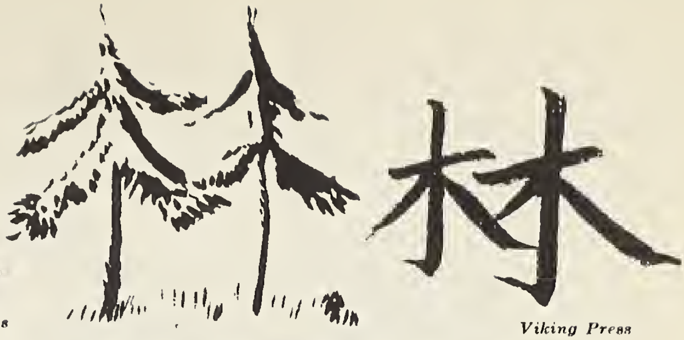
When the New Year and the Feast of Lanterns are over, everyone starts on another year of hard work.

1. Why does Mr. Ling have little to sell from his farm?
2. What work do the Chinese women do in winter?
3. Describe how Mrs. Ling makes a shoe.



Viking Press

Tree with its branches gives MU, "tree" or "wood."



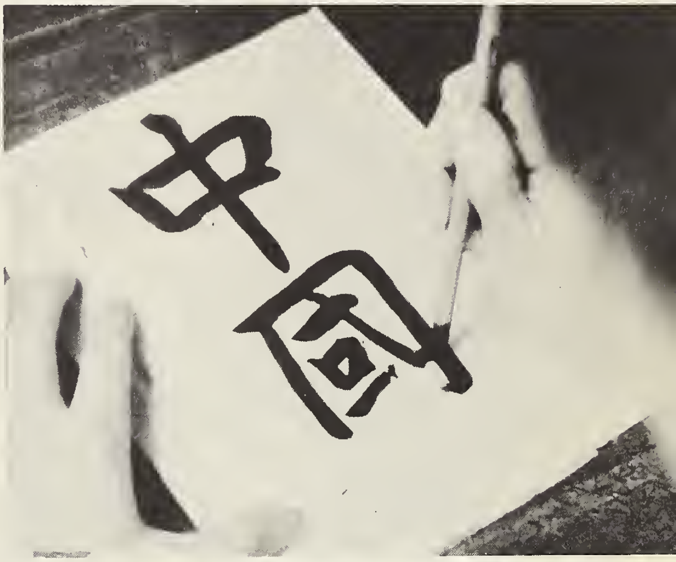
Viking Press

Two trees together form LIN, "the forest."

Writing and Reading

Chinese writing is very different indeed from our writing. When the Chinese write, they make a little drawing that stands for a word. We may call the drawing a word sign. A person who is writing in the Chinese language must know the sign for every word and must be able to make the word sign.

Some of the children also learn to read these word signs. Then they can



Encyclopaedia Britannica Films (above)

Each written character stands for a word, so a Chinese child must learn a character for every word he ever hopes to use. The picture on the right shows the characters that mean "Middle Kingdom."

C. N. S. from Guillumette

read the books that the great men of China have written. It is true that an educated man in China needs to know the word sign for several thousand words.

But many of the Chinese people cannot read and write. Not long ago, some Chinese people wanted to make it easier for everybody to read and write. So they started what they call "the thousand-word system." If a person learns only these one thousand words, he can buy and sell, and travel easily.

Some people have started newspapers that use only the words of the thousand-word system. This makes it much easier to read the news.

This one-thousand-word system of reading and writing is one of the many new things in China.

But some things the Chinese do not wish to have changed. For hundreds of years the people have learned the sayings of their wise men. They wish to keep doing this.

A few years ago, Chang, a little boy who lived in China, went to a new kind of school. The teacher had studied in an American college. He taught Chang to read from an American reader that had been changed to the Chinese language. Chang took the book home and read his lesson aloud to his grandmother.

His grandmother was not pleased when Chang read, "The-cat-can-catch-the-rat."

"Catch a rat, indeed!" said she. "Of course the cat can catch a rat. Everyone knows that! Why does not the book teach something worth remembering?" Chang could not answer this question. Then grandmother stood up. She said from memory things she had learned in her first reader.

She said, " 'One kind word will keep you warm for three winters.'

" 'He who is in the right does not need to speak in a loud voice.'

" 'The kind-hearted have no enemies.'

" 'When a hasty word has once been spoken, a team of four horses cannot bring it back again.' "

Grandmother learned these "wise sayings" and many others from her first reader. She remembered them all her life.

The Chinese want their boys and girls to learn these things. They think it is very important for everyone to be polite and kind.

1. Have you ever seen samples of sign writing? Try to bring to class examples of sign writing from highway traffic signs.

2. Which is easier, learning to write English or learning to write Chinese? Why?

We Trade with the Chinese

The Chinese were the first people to make paper. They invented printing long before printing was known in Europe.

From earliest times the Chinese have made useful and beautiful things. They have made lovely silks. They have carved in wood and in a beautiful stone called jade.

The Chinese were the first to make chinaware—the plates, cups, saucers, and other dishes like those we all use in our homes.

We call such dishes "chinaware" because this kind of ware, with its hard smooth surface, was first made in China. Long, long ago the Chinese invented a finer chinaware called porcelain. When ships from Europe and the United States went to China, the traders brought dishes of chinaware back with them. They also brought beautiful vases and

C. N. S. from Guillumette

Chinese craftsmen are very skillful in using silver to make fine jewelry and other small objects.

bowls of porcelain and of metalwork. At that time, the Chinese had the finest goods in the world.

The people of Europe did not make any goods the Chinese people wanted. If European traders took cloth to China, the Chinese had better cloth. If they took metalwork, the Chinese had better metalwork. If the traders took food to China, the Chinese already had food that they liked better than the food the traders brought.

The only thing that the Chinese would accept from the traders was gold and silver money. The people of Europe and America were sorry about this, but they wanted the firecrackers, the dishes, the tea, the silk, the metalwork, and other lovely things from China. So they paid the Chinese in money.

But after we got machinery in our country, we had things that the Chinese did not have. We had the telephone, the automobile, the airplane, and many kinds of machinery. The Chinese wanted to buy some of these useful things. So the ships that passed between China and the United States began to carry goods both ways. The Chinese have sent us tea and silk and firecrackers, and many other things to pay for machines from our factories and cotton from our farms.

Some Chinese families have sent a son or daughter to school in Europe or America. When these young people return to their own country, they know how to do things that the people of China have not done before. Some of these young men of China have learned how to make machines and run them.

Some Chinese are buying machinery from the United States and Europe. They also are making some machines for themselves. They are building roads, railroads, and steamboats. In some cities in China the people are using factory machinery as we do.

As they make more machines and yet more machines, the Chinese will make changes in their ways of living. But most of the Chinese people still will live in villages. They will grow most of their food on their small farms as the Lings do. Today many make the cloth for their clothes in their homes.

But the Chinese think that their wise men are their best teachers. These men have told them how people should treat other people. The Chinese take pride in living in a way which seems to them in good taste.

1. Why did the Chinese want money instead of goods from the traders?

2. What things do you think the Chinese may now want to get from Europe and the United States?

Some Things to Do

1. Do you know the meanings of these words? If not, look for them in your dictionary. Use each one in a sentence.

sickle
sorghum
bamboo
jade

2. Talk with your classmates about these questions—

a. Why are the houses in this part of China made of brick instead of wood?
b. Why do the farmers live in villages and not on their farm land?
c. Why do the people wear shoes made of cotton cloth instead of leather?
d. How will the use of machinery change the ways of living in China?
e. How is Mr. Ling's method of threshing wheat different from Mr. Jenkins'?

3. Make a list of five foods these people eat. Can you explain how they get each one?

4. Write a story about the Chinese New Year or the Feast of Lanterns.

5. You may like to make some paper lanterns or some kites of paper. The Chinese people are very fond of flying kites.

A Short Quiz

Which of the following would you expect to find in our Corn Belt and on the Chinese farms? Arrange your paper in three columns headed with these words—1. "United States." 2. "China," 3. "United States and China." Place in each column the words and phrases below that describe the column's heading.

level land
combine
fertile soil
money crops
showers in summer
small farms
long growing season
cattle grazing
school busses
cold winters
corn picker
sorghum
cow pulling a cart
fruit trees
soy-bean cheese
hand looms
fuel for winter use

Swiss Federal Railroads

Chapter 14

Valley Farms and Mountain Pastures in Switzerland

A "Cow Parade" in a Swiss Village

We have read about the land of big farms where the Jenkins family lives and the land of tiny, little farms where the Ling family lives. Now let us visit another country where the farms are neither so very big nor so very little, and where most of the country is made up of high mountains. We go to Europe and visit a small country called Switzerland.

We spend a few days at a village inn in a Swiss valley. We have just finished eating breakfast when we hear many bells ringing. The sound comes nearer.

"The cows are coming," says Franz, the waiter. "Would you like to see them?"

We step outside the inn. A long line of cows is coming down the village street. The cows are walking in a row, one back of the other. We may say it is a cow parade. Each cow has a bell fastened to her collar.

Mr. Schwartz, the innkeeper, comes to tell us what is happening.

"The cows of our village are changing pastures today," he says. "They have been eating grass on the mountain at the north side of the valley for a month. This morning the herdsmen brought the cows down the mountain to the village. They are being taken to fresh pastures on the mountain at the south side of the valley."

"Whose cows are they?" we ask the innkeeper.

"Almost every family in the village has at least two or three cows," Mr. Schwartz tells us. "Every spring the cows all go in one big herd. Herdsmen take them to the mountain pastures."

Switzerland Cheese Assoc.

All the village has a holiday when the cows leave for their summer pasture, high in the mountains. The people wear their best clothes and the cows wear flowers and their biggest bells.

The long cow parade passes the inn. A twelve-year-old boy walks at the head of the line.

"That is Rudolph Rabel," Mr. Schwartz tells us. "Rudolph is the helper for the herdsman. He is a very happy boy this morning. This is the very first time Rudolph has had a place in the parade."

The chief herdsman walks next to Rudolph. He leads the best cow. The cow wears a fine collar of leather of different colors. A large bell is fastened to the collar. As the cow takes a step, the bell rings. The other cows follow the cow that is leading.

The sound of all the bells ringing together is loud and musical. Some of the bells are as big as a good-sized bucket. They sound bong! bong! with a deep, low tone almost like a drum. Other smaller bells go ting! ting! with a much higher sound. The Swiss people love to hear their cowbells ring. They choose bells with different sounds, so that together the bells make music.

It is almost a village holiday when the cows change pasture. The people come from their homes to see the cows pass.

As the long line passes the inn, a little girl waves to Rudolph and calls, "There goes our Spot!"

"See our Crumply Horn!" shouts a small boy, "the one with a chain of daisies on her neck! I picked the flowers."

"Your people seem very fond of their cows, Mr. Schwartz," we say.

"Yes," replies the innkeeper. "Our cows do much for us, so we take good care of them."

We ask Mr. Schwartz if we may visit the herd at the mountain pasture.

"I shall be glad to ask my neighbor, Mr. Cabot, if you may do so," says our

Switzerland Cheese Assoc.

Part of the curing of "Switzerland Cheese" is the daily washing of the cheese in the curing cellar. Each of these cheeses weighs at least 100 pounds. Swiss cheese is famous all over the world.

host. "Perhaps his son, Pierre, will take you up there."

1. On a globe or a map locate Switzerland.
2. What kind of land surface is there in Switzerland?
3. Why do you think the cows wear bells?

Mr. Cabot's House

In the afternoon Mr. Schwartz takes us to the home of Mr. Cabot. The Cabot house seems to be as big as a barn. The living rooms for the family are on the ground floor at one end of the long building. Next to the living rooms are a wagon shed and a tool shed. Then there is a place for cows, a place for horses, and, in the far end, a place for pigs. The family has sleeping rooms in one end of the second floor. The rest of the second floor is used for storing hay. The cows that we saw spend the winter months in the village. A great deal of hay is needed to feed them.

The roof of the house comes out so far that it seems almost like a porch roof. Firewood is piled under this roof. Here the wood is kept dry and is ready for both the cook stove and the warming stove.

Mrs. Cabot shows us the living rooms of her house. Everything is as neat and clean as a newly washed dish. In a storeroom are many hams and pieces of bacon.

Mr. Cabot takes us to the big cellar where many cheeses are stored in long rows on shelves. Mr. Cabot sells cheese.

"Can you guess the weight of a cheese?" he asks.

We say we do not think we can.

"Well," says he, "there isn't a cheese here that weighs less than a hundred pounds."

A Swiss cheese has to stay in the cellar for a year or more to ripen, or cure, before it is ready for market. Cheese tastes better when it is well ripened. People in the United States like to buy cheese from Switzerland whenever they can.

Today there are no cows in their place in Mr. Cabot's barn. Mr. Cabot says that this place will not be used until the herd comes back from the mountain pastures in the fall.

We ask Mr. Cabot if he thinks we could visit the camp on the mountain. We tell him we want to see how the Swiss people make cheese. Mr. Cabot tells us we may visit the camp, but we shall have to walk for three or four hours up the steep hillsides. There is no road, only a footpath.

"You can't get back tonight," says Mr. Cabot. "There are no houses at the camp, only a barn. But you can sleep on the hay in the barn. Pierre will go with you to show you the way. He sleeps on the hay when he goes up to visit Rudolph Rabel."

1. Why do you think Mr. Cabot keeps his cows in a part of his house, instead of in a barn as Mr. Jenkins does?

Up the Mountain Trail

We walk along a path through the woods. Pierre, Mr. Cabot's fourteen-year-old son, leads the way. We walk for an hour, always going up, up, up. By the end of the hour we are tired and stop to rest. We have not climbed mountains very often.

For three hours more we climb and rest, climb and rest. Pierre is not tired and his legs do not hurt. He is used to climbing mountains. He spent most of last summer at the cow camp, working as a herdsman's helper.

At last, just at sunset, we hear the sound of bells. We come out of the woods, and there before us is a wide pasture of almost level land. Many cows are walking about, eating grass.

Pierre takes us to a long, low, stone barn where there are stalls for eighty cows. The five herdsmen and the cheese maker sleep in the barn and eat their meals there.

The herdsmen invite us to eat supper with them. We all sit on wooden benches beside a bare wooden table. On the table is a big loaf of bread. This loaf weighs about ten pounds. Beside the bread is a big cheese. Also, there is plenty of coffee in a large pot. That is all, except a bowl filled with sugar. On the table is a plate and a cup for each of us. We are invited to help ourselves. Each person with his own pocket knife cuts off as much bread and cheese as he wants. Each pours coffee for himself and helps himself to sugar.

After the sun has set, the air is very cool on the mountain. The camp is about seven thousand feet above the level of the sea. The evenings are always cool in a place that is as high above the sea level as is this camp.

After supper we are very glad to sit near the fire that burns on the hearth. Rudolph and Pierre put more wood on the fire. We all draw nearer. The men tell stories about their life on the mountain. They also tell us about the village in wintertime.

Mr. Marcel, the cheese maker, answers our questions about his work. The evening passes very quickly.

Now the fire is beginning to die down. We say good night and thank the men for making our visit so pleasant. Soon we are asleep on the hay in the second story of the cow barn.

1. Why are the nights cool in the mountain pastures?

We See How Cheese Is Made

We hear nothing until we are awakened in the early morning by the sound of bells. The cows are coming to the barn to be milked.

Mr. Marcel soon has a good fire burning and water is boiling for the breakfast coffee. He is going to be very busy today making cheese from milk.

We have more bread and cheese and coffee for breakfast. As we eat, someone drives the cows into the barn. The cows are in no hurry about coming. They are really very slow about it. They walk a few steps, stop and look about, then take a few mouthfuls of grass. A herdsman shouts at them, but he does not throw a stone or use a stick. He never hits a cow with anything harder than his open hand. The Swiss people care for their cows with such kindness that the cows are almost like pets.

When the herd is in the barn, each milkman takes a bucket and sits on a stool beside a cow. We hear the sound of streams of milk striking the buckets. In a few minutes one of the milkers cries, "Hi-yi!" This means, "My bucket is full!"

"Yee-hee!" answers Rudolph, and he comes with a very big bucket. The milkman pours the milk from his bucket into Rudolph's larger bucket. Rudolph carries the milk to the cheese room. There he pours the milk into a very big copper kettle. The kettle will hold about three hundred gallons of milk.

"Hi-yi!" cries another milkman.

"Yee-hee!" answers Rudolph. Soon another bucket of milk goes into the kettle, and another, and another. By the time the men have milked eighty cows, there are a hundred gallons and more of milk in the kettle.

Swiss Federal Railroads

Hikers climb the trail to the Matterhorn. They have a long, hard climb ahead of them.

Mr. Marcel now has a small fire going under the kettle. When the milk is hot, he puts something into it that curdles it. The milk gets thick and turns into curds or soft cheese. Mr. Marcel takes the soft cheese out of the kettle and puts it into bags. He puts the bags of cheese into a press that squeezes out the whey or watery part.

Tomorrow the cheese will be hard. Each day Mr. Marcel makes several big cheeses. Many pounds of milk are needed to make one pound of cheese.

While Mr. Marcel is pressing out the whey from the cheese, we hear the sound of squealing. There are some white pigs calling loudly for their breakfast. Mr. Marcel pours several buckets of whey into a pipe that leads to a trough back of the barn. The trough is the pigs' breakfast table. They drink the whey and then go off to eat grass.

Some pigs go along with every herd of cows on the Swiss mountain pastures, but no one puts flowers around their necks. One of the pigs we see is Rudolph's pet. This pig, whose name is Snowball, tries to follow Rudolph everywhere the boy goes.

"I do believe that pig would follow Rudolph to bed if he could," laughs Pierre.

1. Explain the words, "curds," and "whey."
2. Why do you think so much cheese is made during the summer in the mountains?

A Beautiful Mountain Country

Pierre and Rudolph take us to a place where we can see the valley and the mountain beyond. We stand on a great rock at the top of a steep cliff. The top of the cliff is much higher than the trees that grow at the bottom. If we should fall over the edge of the cliff, we would have no story to tell.

In the distance we see a mountain so high that its top is covered with snow, even in summer. On the mountainside below the snow are high pastures. Below the pastures are evergreen forests.

We look down at the valley below. It is almost like looking at a map. We see the railway station and the inn where we are staying. Through our field glasses we see vegetable gardens beside the houses and rows of fruit trees in the orchards. There are many small fields, some of potatoes, some of wheat, barley, and oats. We can see two horses and a mowing machine where a farmer is cutting grass for hay. In the valley the fields are level enough for the farmers to cut grass with mowing machines, as Mr. Jenkins does.

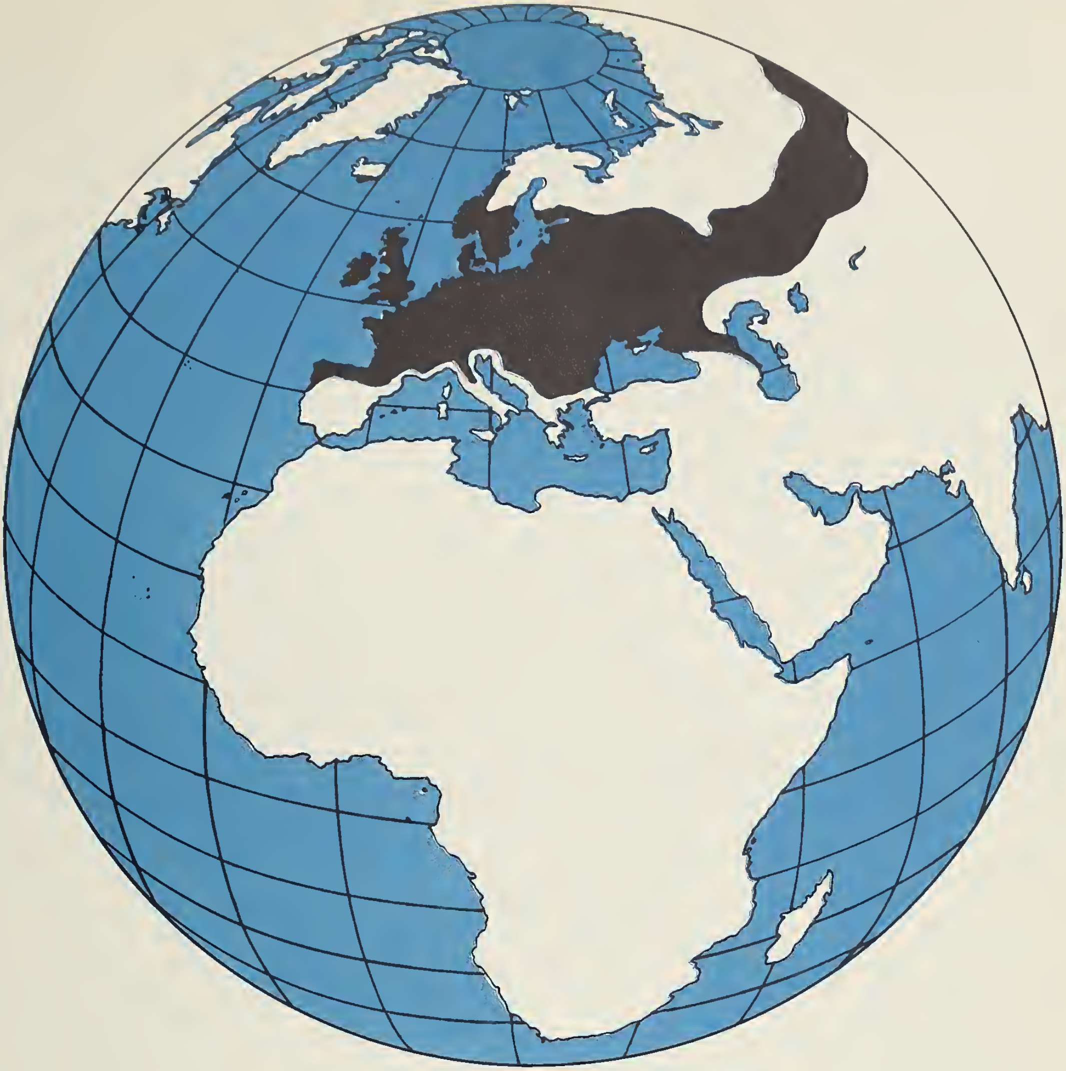
Pierre points to a man who is working on the mountainside. He is far below us. But he is also far above the valley. This man is cutting grass with a scythe. We see that no machine can cut grass in that steep place. It is so steep that we wonder why the man does not fall down the mountainside.

Rudolph says, "The herders are afraid to let the cows go there to eat grass. Once one of our cows fell down that mountainside and that was the last of her."

Near the man who is cutting grass is another man putting the dried grass into piles. Then he ties the hay into bundles with a rope. He carries the bundles of hay on his back to a little barn that stands on the mountainside. There is no house near the little barn. The barn was made to store the hay that grows near it. We count twenty of these little barns scattered about near the places where the farmers make hay. In summer the haymakers fill the barns with hay. In winter they take the good, sweet hay from the barns to the cows in the village.

"You ought to see us getting the hay down to the village in winter," says Rudolph. "We pull sleds up the mountain by hand. At the barns we load the sleds with hay. Then what a time we have getting the loads of hay down the mountain without letting the sled run away! It's great fun! But one of our neighbors had his leg broken when his sled ran away with him last winter."

Pierre tells us that most of the hay is brought down the mountain on wires. A



The belt of farm land stretches all the way across Europe. Compare maps and pictures of living in farm lands in North America, Asia, and Europe. Which continent has the largest area of farm land?

William Thompson

Swiss Federal Railroads (above), Galloway (facing page)

Haymaking in the mountains of Switzerland is often dangerous. The hay is tied into bales, then guided down the steep slopes to the villages for winter use. What is each of these men doing?

rope net is filled with hay and a hook holds it on the wire while it slides down the mountainside.

With the field glasses we can see the railway tracks that run through the valley. We see a white road that goes through the village and on up the valley in one direction and down the valley in another direction. Automobiles moving along the road look like black bugs. The boys tell us that some of the cars are owned by people who live in the valley. But many are owned by persons who have come to Switzerland from other countries to enjoy this beautiful mountain country.

Pierre points out a large building on the hill above the village. "That is a hotel where some of the rich visitors stay."

"My sister works in that hotel," says Pierre. "She helps to take care of the guests. My sister is saving money for the time she will be in college. She wants to be a teacher. Summer hotel jobs are a great help to us young people."

As we sit in the shade on the cliff, we let our eyes follow the valley beyond the village. We see that this valley comes out into a wider valley. We can see that the white road and the railroad lead to a town where the two valleys meet. In this town we can see many houses and some large buildings.

"What is the big brown building?" we ask.

"That is a factory that makes silk," says Pierre. "I hope to get a job in the silk factory some time. Two hundred people work there."

Swiss Federal Railroads

A good supply of chopped wood stacked against the house is a promise of comfort for the winter season.

"Maybe you will be the manager of the factory some day," says Rudolph.

"It is time to go to the valley," says Pierre.

We take another long look at the mountains and valleys. It is no wonder visitors come here from all parts of the world. Switzerland is certainly a beautiful country.

At the barn we say good-bye to the herdsmen, and with Pierre to lead the way, we go down the long trail through the evergreen trees to the valley.

1. What two ways are used to get hay down from the mountains in winter?
2. How are factories and hotels helpful to the young people?

We See All of Switzerland

"And how do you like sleeping on the hay in the cow barn?" says Mr. Schwartz the evening after we get back from the high pastures.

"The beds in your inn are better beds, but we would sleep under the trees any time to have such a trip as that. We saw so many interesting things and learned a great deal about Switzerland."

"Well," says Mr. Schwartz, "suppose I should tell you that you have seen all of Switzerland?"

"What do you mean? We know Switzerland is a little country, but we did not see all of it today."

"Oh no!" says Mr. Schwartz, "but you saw samples of all of Switzerland. You saw something of every one of the four main things in Switzerland. Those four things are villages and valley farms, mountain pastures and forests, hotels for tourists, and factories to make things to sell.

"Pierre tells me that you stayed a long time on the high rock. From that rock you saw our little valley and our village with the gardens and orchards

Monkmeyer

Children start for a ski race. Switzerland is a winter sports center—skating, skiing, and tobogganing.

and wheatfields and hayfields and potato fields around it.

"Then you saw the mountainsides above the valley with the hayfields and hay barns and strips of forest. Cutting wood in that forest is a winter job for the village people. Then above all that you saw the high pastures and the snow-covered mountaintops. That is Switzerland for you! We have hundreds of valleys and villages and mountainsides and snowy tops like the one you saw today.

"You are right in saying that we have a beautiful country. That is why you came. That is why thousands of travelers come to visit our country.

"You saw the big hotel on the hill above the village. That hotel means tourists. Tourists are the third way we have of making a living in Switzerland.

"The people in this neighborhood got a lot of money for building that hotel. There were jobs for bricklayers, stone masons, carpenters, plumbers, roofers, painters, electricians, and I don't know how many others. Money was paid for bricks and lumber, window glass, and cement.

"When the hotel opens in summer, there is work for cooks and waiters, maids, hotel clerks, and chauffeurs. The farmers' wagons and trucks drive up with butter and milk, chickens and eggs, vegetables and fruits. There are hundreds and hundreds of large hotels and small inns in Switzerland."

"Oh yes," we say, "taking care of travelers is an important business for you, isn't it?"

"Indeed it is," says Mr. Schwartz. "We have summer visitors and now we have winter visitors, too. More and more people like winter sports. When our lakes are frozen over and our country is covered with snow, Switzerland

Swiss Federal Railroads

Two happy Swiss children are dressed in their best clothes for a party.

is a fine place for skating, skiing, and coasting. Thousands come for sports.

"There is one more thing that you saw today," says Mr. Schwartz. "I'm sure you saw the factory in the town at the end of our valley. We have many factories in Switzerland. We must have them.

"We have so many mountains that there is not much good farm land. We take good care of what we have, but we cannot grow enough food for our people. We have to buy wheat and meat and many other things. Before we can buy these things, we must sell something to get the money. That is why we build factories. If we did not have factories, many Swiss people would have to move away or be hungry. There are two of us working in a factory for every one that works on a farm.

"When we build a factory, we have to buy iron and steel and copper. When we run the factory, we have to buy cotton and wool and silk and hides and other things that we call raw materials. We buy big bales of raw cotton from your country and sell lace and fine cotton cloth. We buy iron and steel and make it into fine machinery. We buy a few ounces of metal. We work with it for a few days and sell a watch. I'm sure you know that Swiss watches are among the best watches in the world.

"We do not have any coal mines or oil wells in our mountains, but we have waterfalls in our mountain streams. We build dams, put in water wheels, and make electricity. We use electricity more than any other people in the world. Nearly all of our railway trains are run by electricity."

"Well, well. We thank you, Mr. Schwartz. You are right. We did see all of Switzerland from that rock up at the edge of the high pasture."

The things we saw from the high rock above the Swiss valley were really samples of all Switzerland. In the same way, that small country is a sample of northwestern Europe.

Switzerland is a very small part of a large green strip of farm land. But what we know of Switzerland tells us much about this strip of farm land. There are many countries in it. In every one of these countries farmers are using most of the good land. Nearly all of the farmers live in or near villages. In nearly every farm village the people are growing some of the same crops that the Swiss farmers are growing. There seems to be an endless land of farms and villages and forests on the steep and hilly land. There is farm land all the way across Europe and on into Asia.

Switzerland has a big tourist business. But so have many other countries in Europe. People from the United States, Canada, and South America go to Europe every summer.

Most of the countries in Europe are like Switzerland in still another way. They have so many people that they cannot grow enough food for themselves. So they must buy food from other countries and pay for it by making things to sell. That is why we find factories in the towns of other countries of Europe, just as there are factories in Swiss towns.

One country that has a big factory business is England. England is a part of the British Isles. These islands are west of the continent of Europe. The two largest ones are called Great Britain and Ireland. England is a small country and has a great many people. It cannot grow all the food its people need. So England depends on its trade with other countries. Much of this trade is in goods that English people make in their factories. Most of the goods are made from raw materials bought from other countries. Then people in the other countries are glad to buy the finished goods from the English factories. They also are glad to sell foodstuffs and raw materials to England for its many people.

1. Name the four main things in Switzerland that provide a living for the people.

2. Name two ways in which most of the countries in Europe and the British Isles are like Switzerland.

Some Things to Do

1. Define "mountain" and "valley" in your own words. Add the two words with their definition to your notebook list of geographical terms.

2. Make a model in your sandtable, or one of heavy paper of mountains and valleys.

3. Pretend you are telling a group of tourists what all of Switzerland is like.

4. Collect pictures for your scrapbook about living in the Corn Belt. Try to get scenes from our country, from China, and from Switzerland.

5. Divide your class into three groups. Each group choose one of the countries of which we read in this unit and prepare a list of questions to ask the other two groups. Be sure you know the correct answers to your own questions. Read the chapters so you will be able to answer questions on them.

A Short Quiz

1. Below are sentences in which the facts are right, but the reasons given are wrong. Copy each fact, but give the correct reason for it. Check your completed statements with Chapter 14.

   a. The herdsmen drive the cows to the mountains in summer because it is cooler there than in the valley.
   b. They bring the animals down from the mountains in the fall because cheese must be made in the village during the winter.
   c. Hay is used for winter feed because it is easily stored in the barns.
   d. We walk to the camp in the mountain pasture because we want to see the beautiful scenery.
   e. Much cheese is made in the summer camp because tourists like to eat cheese.
   f. Railroads follow the hillside curves because passengers like a long ride.

A goldsmith works in Geneva, Switzerland.

Swiss Federal Railroads

International Harvester Co.

Chapter 15

Farms in the Southern Hemisphere

Near the Plata River

Perhaps you have heard someone speak of England as our "mother country." England is said to be our mother country because so many people came to the United States from England. Today we speak the English language and call it our "mother tongue."

We sometimes call our grandmothers and grandfathers, and our great-grandparents and their parents, our ancestors. The ancestors of every American, except the Indian, came from some other part of the world since Columbus discovered America. Some came from Asia and some from Africa. But most of our ancestors came from the countries of Europe.

Those who came from Europe to make their homes in North America brought with them all sorts of animals that they had in Europe. They brought cattle, horses, sheep, and pigs. They brought chickens, ducks, and geese. They also brought the seeds of wheat, oats, barley, and many vegetables. They brought apple trees, peach trees, and grapevines, or the seeds of them. They planted these things in gardens and fields about their new homes in America.

The ancestors of the Jenkins family came from Europe. So did the ancestors of their cattle, their pigs, and most of their crops. These people and their animals and crops were used to living in Europe. Men have found weather and land that suit the Jenkins crops and animals in six of the continents.

People from Europe moved also to South America, and to Australia, and to South Africa. In each of these places they found some land as well as weather that suited them, their farm animals, and most of their crops.

In South America there is a large river named the Plata. The land near the Plata River is much like our Corn Belt. It is level and it is rich. The weather is good for corn and wheat and cattle.

The people from Europe who made their homes on this good land in South America farm the American way. Their farms are large. They use some of the same kinds of machinery that Mr. Jenkins uses. Some of the machinery may even come from the same factories. South Americans buy a great deal of machinery from the United States.

Corn and wheat and hay are grown on these farms near the Plata River. There are good pastures, so the farmers keep many cattle, just as Mr. Jenkins does. Some of the farmers keep the same kind of cattle. These cattle have reddish bodies and white faces. They are good cattle for meat. The ancestors of these cattle came to South America and to North America from Europe.

You remember that Mr. Jenkins sends his cattle and hogs to market in the city. In South America there is a big city named Buenos Aires. Buenos Aires stands beside the Plata River. Each year many steamships leave Buenos Aires and go down the river and away across the ocean to Europe. Some ships are loaded with corn, others with wheat, and still others with meat and wool. The ships that take the corn and wheat and meat to Europe return to South America loaded with factory goods of many kinds. Some of these goods come from English factories and Swiss factories and factories in other European countries. They are sold in the big stores in Buenos Aires. Some of them are sent from Buenos Aires to stores in smaller cities

Australian News and Information Bureau

Farmers in the Southern Hemisphere send out shiploads of grain to other countries. What products will the boats bring back to Australia and to Argentina?

Ministry of Agriculture of Argentina

and towns. Some are sent to stores in villages far out among the farms.

A part of the continent of Australia is like the lands by the Plata River in three ways. Most of the people have European ancestors. They use machines on their farms. They send shiploads of wheat and meat to Europe.

We have learned that the farmers in our American Corn Belt send trainloads of food to the people in our cities. The farmers in parts of Australia send away shiploads of meat and wheat and corn.

In South Africa, where a great many English and Dutch people live, some of the farmers use machines just as Mr. Jenkins does. But they do not send much food to other countries because most of their land is too dry to grow good crops of corn and wheat and hay.

Some Things to Do

1. Do you know from what country your ancestors came? Make a list on the blackboard of all the different countries from which ancestors of you and your classmates have come.

2. Write the names of the six continents which have weather and land that suit the Jenkins farm crops and animals. Tell why the seventh continent could not be included.

3. Find the Plata River on a globe or a map. What is the name of the city which is a cattle market near the river.

A Short Quiz

1. Find a term in the story that means—
   a. our "mother country"
   b. the country from which most of our ancestors came
   c. a large cattle market in South America
   d. the kind of goods brought to South America from Europe.

Stories You Will Enjoy

Smiling Hill Farm by Miriam E. Mason—Ginn

Prairie Neighbors by Edith Marion Patch and Carroll Lane Fenton—Macmillan

Pigtails by Johanna M. Hekking—Stokes

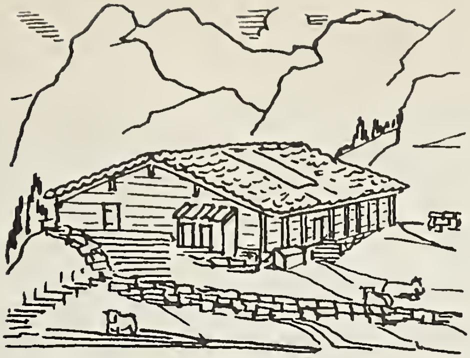
Ho-Ming, Girl of New China by Elizabeth Foreman Lewis—Winston

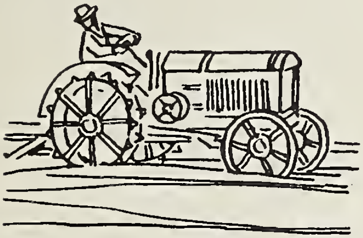
Little Swiss Wood Carver by Madeline Brandeis—A. Flanagan

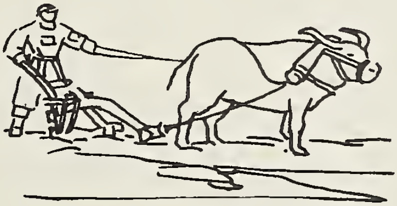
Heidi by Johanna Spyri—Winston

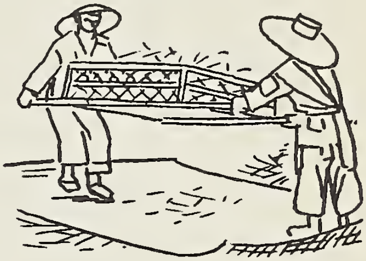
Farmers in South Africa and Australia use both horses and machinery to harvest their crops.

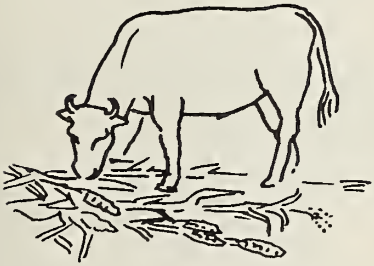
Australian Development and Migration Commission (below)

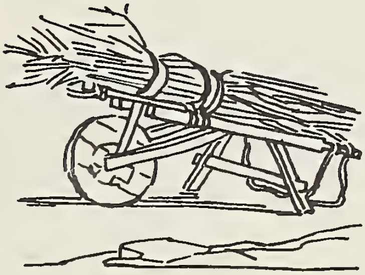


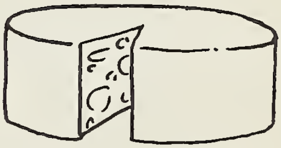










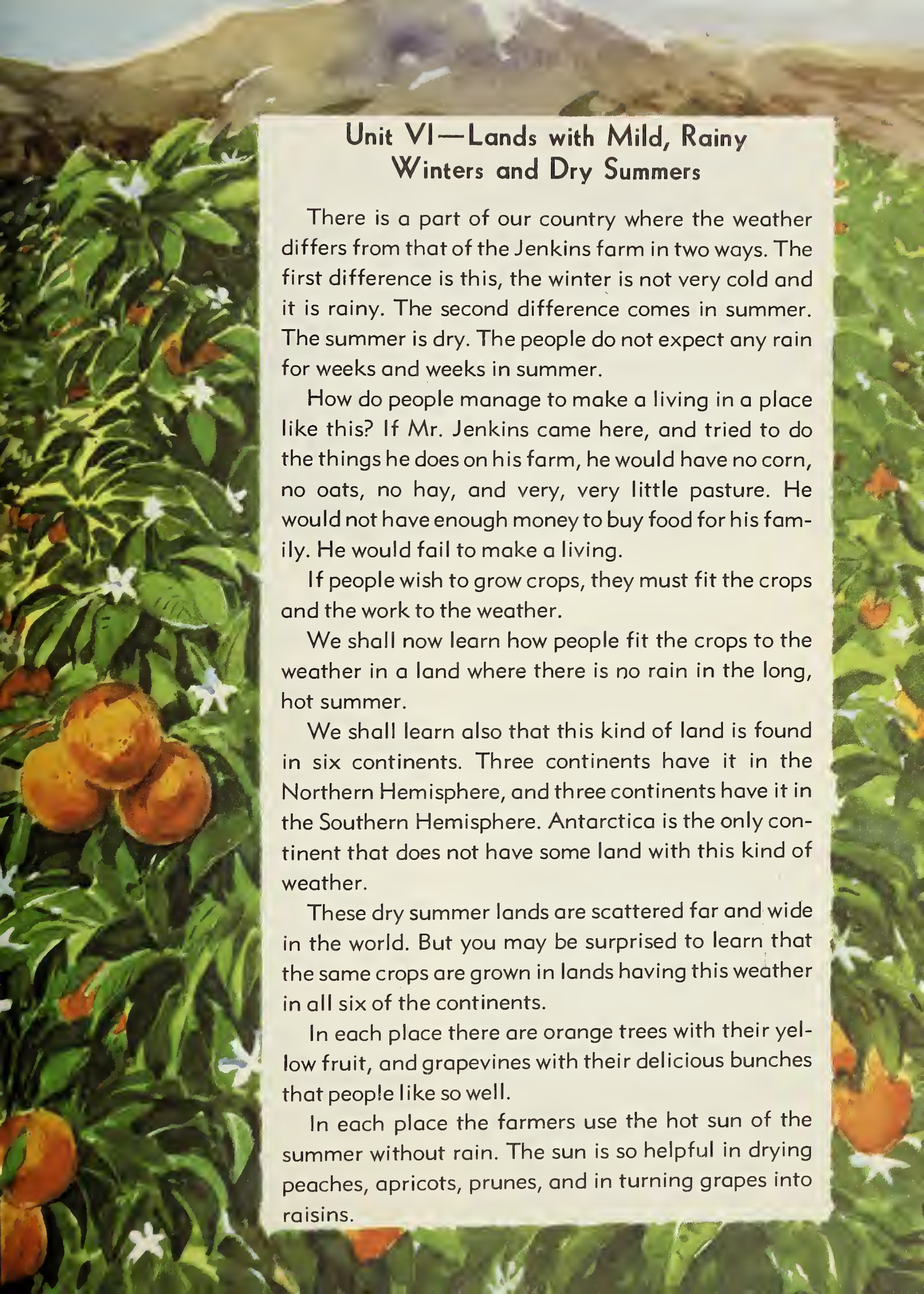


A Summary

1. With which country or countries in the belt of farm land would you identify each of the following? Write your answers.
   - a. small farms
   - b. valley farms
   - c. tractors and combines
   - d. wooden houses with sloping roofs
   - e. cattle from ranch lands
   - f. soybeans an important crop
   - g. sign writing
   - h. farms near the Plata River
   - i. many waterfalls and factories

2. Write at least one fact about each of the drawings on this page.

3. Write a paragraph about each question.
   - a. In what way is each of these necessary for good grain crops—fertile soil, long growing season, warm summers with rain, and level land?
   - b. How is farming in our continent different from farming in Europe and in Asia?
   - c. What are the chief uses of corn, wheat, and oats?
   - d. What are the main differences between the farm belt and (1) the arctic regions? (2) the tundra? (3) the cold forests?



Unit VI—Lands with Mild, Rainy Winters and Dry Summers

There is a part of our country where the weather differs from that of the Jenkins farm in two ways. The first difference is this, the winter is not very cold and it is rainy. The second difference comes in summer. The summer is dry. The people do not expect any rain for weeks and weeks in summer.

How do people manage to make a living in a place like this? If Mr. Jenkins came here, and tried to do the things he does on his farm, he would have no corn, no oats, no hay, and very, very little pasture. He would not have enough money to buy food for his family. He would fail to make a living.

If people wish to grow crops, they must fit the crops and the work to the weather.

We shall now learn how people fit the crops to the weather in a land where there is no rain in the long, hot summer.

We shall learn also that this kind of land is found in six continents. Three continents have it in the Northern Hemisphere, and three continents have it in the Southern Hemisphere. Antarctica is the only continent that does not have some land with this kind of weather.

These dry summer lands are scattered far and wide in the world. But you may be surprised to learn that the same crops are grown in lands having this weather in all six of the continents.

In each place there are orange trees with their yellow fruit, and grapevines with their delicious bunches that people like so well.

In each place the farmers use the hot sun of the summer without rain. The sun is so helpful in drying peaches, apricots, prunes, and in turning grapes into raisins.

Pasadena Chamber of Commerce

Chapter 16

Living in a Land of Fruit and Flowers

Mrs. Tibbet's Orange Tree

We are in an airplane. We have been flying all night. We are now coming down to an airport in California. We get out of the plane, and there are our friends, Mr. Gray and his son, Dick. They have come to the airport to meet us and take us for a drive in their automobile. Soon we are passing houses with green grass in the yards around them, and flowers are blooming beside the road. This is the month of March, but fruit trees are in blossom. People are walking around out-of-doors, enjoying the nice weather. Many of them have come from colder places to spend the winter here. We pass a school. It is recess time, and the children are all out-of-doors.

Soon we pass an orange grove. Every tree has glossy, dark green leaves and beautiful ripe fruit. It is a pretty sight. We pass another orange grove, and another. Sometimes there are orange groves on both sides of the road. We stop beside a grove where many men are picking oranges. Boxes full of oranges are on the ground, waiting for the trucks to haul them away. Some nice, ripe oranges have fallen from the trees, and lie on the ground. The owner invites us to help ourselves. We eat all we want.

We are on the top of a small hill. Nearby, we see houses and more orange groves, but ahead of us, miles away, is a long, high mountain. The top of it is white with snow.

Mr. Gray drives on toward the mountain. Our automobile goes uphill most of the time. There are no more orange trees beside the road. We see pine trees on the hills not far away, and snow lies on the ground beneath the pines. We come to the top of the mountain, and get out of the car. We walk along a path through pine trees, and soon come to a fire tower. The fire tower has been built for the person who looks for forest fires.

In summer, when the forest is dry, there is great danger of fire in the forest. Then someone stays in the tower all day, looking out over the forest. If the watcher sees smoke, he calls someone by telephone, and tells where the fire is. Then the fire fighters get into trucks and automobiles, and go as fast as they can, and put out the fire.

There is no danger of fire now, for the mountain is covered with snow. We climb the tower, so that we may see the view. We look. All around us there is snow, and pine trees. We see the road up which we came. Far below us we see a wide band of dark green. That is the orange grove that Mr. Gray has shown us. There are fields of green grass and young, green grain that looks like grass.

It seems that our airplane has brought us to another world. It has brought us to a land with another kind of climate. Yesterday we were in New York City, at the other side of our country. The wind was biting cold. The ground was frozen hard. There was no green grass. No flowers bloomed in the yards. Today we are in warm sunshine, with green grass and blooming flowers.

There is snow on the mountain around our fire tower, but down there, a few miles away, we saw green grass, flowers blooming, and people picking oranges from the green and growing trees.

The weather here is so very, very different at this time of year from the weather near New York or Chicago, or the Jenkins farm in the Corn Belt. Here, in this part of California, the winter is mild and rainy. There may be a few mornings with frost, but no one expects the ground to freeze. Grass is green all winter. They pick oranges all winter in the groves.

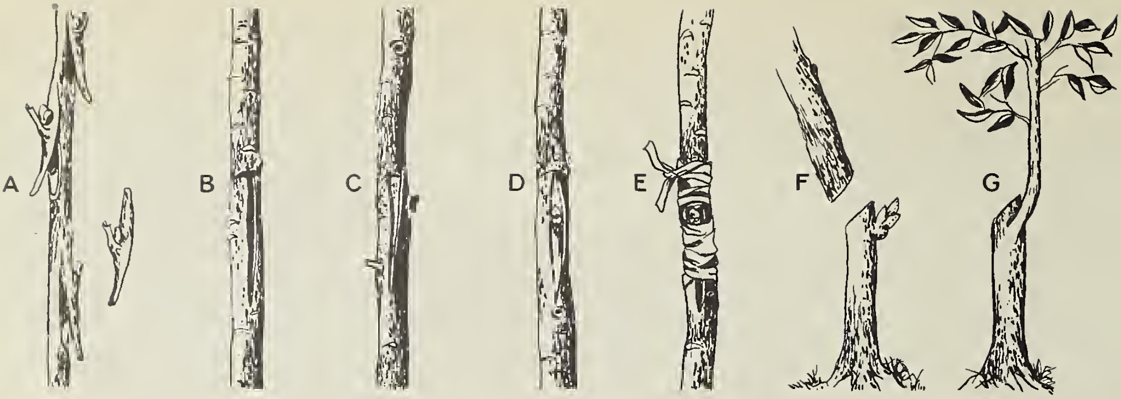
We drive down from the mountain. Mr. Gray drives through the orange groves again, but we go on another road. He stops the car beside one orange tree that has a high, strong, iron fence around it.

"That tree," says Mr. Gray, "that tree behind the iron fence is the mother tree of millions of other orange trees."

The story of the "Mother Orange Tree" and her many children will show us how it came about that we now have so many kinds of good fruit.

The "parent" of navel orange trees is more than 75 years old and still produces good fruit.

Sunkist Photo



There was a time when there was only one such orange tree in the whole world, as the one behind the fence. The oranges that grew on this one strange tree were the kind that we call navel oranges. We might say that the one navel orange tree was a kind of accident of nature—like a pup born with only three legs. This special tree grew in South America. Someone brought two of the children of this navel orange tree from South America to this country. The two trees were given to a woman in California whose name was Mrs. Tibbet. This was in 1873. Mrs. Tibbet planted the trees. She watered them and took good care of them. One of the trees still lives and bears fruit. It is the one that we see standing there alone inside the iron fence.

Orange trees bear fruit after about five years. This seedling may grow as high as 30 feet and produce good fruit for many years.

Encyclopaedia Britannica Films, Inc.

When Mrs. Tibbet's tree began to bear, everyone who ate one of the navel oranges was surprised. Some people wished to have trees just like Mrs. Tibbet's tree.

The drawings above show you how it came about that we could get a million orange trees from the one good mother tree we happened to find.

A. The twig from the mother tree.

B. A cut is made in the bark on the trunk of a little sour orange tree that grew from a seed.

C. The bark is lifted up a little bit.

D. A bud has been cut from twig A. It has been slipped under the bark of the little tree.

E. Raffia is wrapped around the little tree to keep the bark close to the bud and to keep the bud moist. The bud grows fast to the little tree.

F. The top of the little sour orange tree is cut off. The bud from the sweet orange tree grows and begins to make a new top. This new top will be just like the tree from which the bud came.

G. A young orange tree that has been budded. Its old top is now to be cut off so that the new top can grow from the bud that has been put into the slit in the bark of its trunk. It has sour orange roots, a sweet orange top, and it will bear sweet oranges. We say that the tree has been budded.

We may say that budding trees is a kind of garden engine or tree engine. Factory engines help us to make thousands of nails or pencils or shoes all alike. This tree engine helps us to make thousands of trees all alike.

We started with one navel orange tree, but now anyone can buy these navel oranges in thousands of stores in our country all the way from the Pacific Ocean to the Atlantic Ocean.

This story of the little orange tree also tells us about other good things that grow on trees. It shows us why it is that we have so many good apples, pears, peaches, plums, prunes, walnuts, almonds, and other fruits and nuts. The tree growers find one very good tree. Then they use its buds to make as many more like it as they want.

That fence around Mrs. Tibbet's old tree shows how important it is to get the first good tree. Every kind of fruit has had its mother tree.

The people of California grow several kinds of oranges. Some neighborhoods grow navel oranges, but many other neighborhoods grow other kinds. Some people like to eat one kind. Some people like other kinds. Many people in California grow oranges that are called Valencias. The Mother Tree of all the Valencia orange trees grew in Europe near the city of Valencia, in a country called Spain.

Some kinds of oranges get ripe at one time, and some get ripe at another time. Within an hour's ride of Mrs. Tibbet's old tree, we can pick ripe oranges from the trees almost every day in the year. An orange tree never stops working. It has to have good weather all the year. You may see on one tree, at the same moment, blossoms, green fruit of all sizes, and ripe oranges ready to eat.

Trucks and cars and ships carry these California oranges to all parts of our country. Some of this fruit even goes in ships to other countries across the ocean.

1. How is the winter weather in California's fruit-growing land different from the winter weather in the Corn Belt?

2. Can there be fruit trees in blossom and snow on the mountains in the same neighborhood at the same season? Explain your answer.

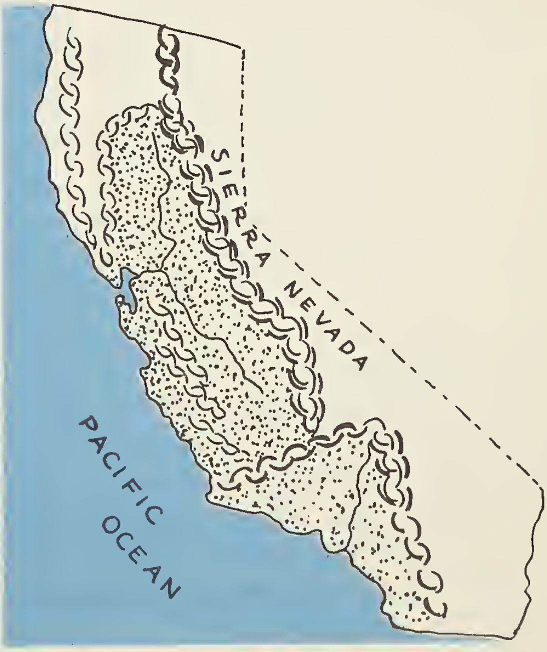
3. What have you learned about Mrs. Tibbet's orange tree?

We Visit California in Summer

In March we could stay only one day with our friends, the Grays, but we come back in August. In New York, it has been raining every week or two all summer. As we drive to the airport, the grass is green.

When we get to southern California, the country there does not look like the same country that we saw in March. It

Why would you use the terms, "dry summer" and "irrigation," to describe the fruit areas of California?



U. S. Forest Service

Other kinds of trees besides orange trees grow in California. High on the mountain slopes are heavy stands of timber. During the dry summer there is great danger of fire in the forests.

has not rained in this place for three months. The grass beside the road is no longer green. It is brown. It seems to be dead. The hillside is brown, too. The grass there seems to be dead.

But just beyond us is a surprise. Right beside the brown hillside, we see bright green grass and some flowers.

The grass and.flowers are in the front yard of a house that stands near the road. How does it happen that the yard has rich green grass when everything else nearby is brown and dead? We look again and see that a lawn sprinkler is wetting the grass.

We are visiting a place where nature makes grass green in winter and spring. But if the grass is to be kept green in summer, man himself must bring water to growing plants. This is called irrigation. The lawn sprinkler is irrigating the grass in front of the house.

Flower gardens must be irrigated in this part of California, and so must vegetable gardens and fruit trees and crops in the fields. The people do not expect to have even one good rain between May and October. That is the great difference between the summer weather in this part of California and the summer in the Corn Belt, and in the eastern United States.

We have a name for this kind of weather that has the warm, dry summer and the mild, rainy winter. We call it Mediterranean weather, or Mediterranean climate. We call it Mediterranean climate because it is to be found on most of the shores of the Mediterranean Sea. That is where the white man first learned about it and gave it a name.

The part of North America that has the Mediterranean climate has an ocean

Sunkist Photo

Citrus trees could not grow in California without irrigation. Water is brought from far-off mountain and river sources and turned into furrows between the tree rows.

on the west, and high mountains on the east. The winter winds often blow from the west, and bring moisture and rain from the ocean.

When we get to California in August, Mr. Gray meets us at the airport. We take another automobile ride. We go up the mountain to the same place to which we went in March. As we leave the road and enter the forest to go to the fire tower, a forest ranger steps up to us. The forest ranger is a man whose work it is to see that no fire gets started in the forest.

The pine needles that lie on the ground beneath the trees are as dry as old newspaper, and they will burn easily if a lighted cigarette falls on them.

The forest ranger hands us a little bag. If we have cigarettes, we must put them into the bag. California school children make these bags. It is one way of keeping down fires. A forest fire in the dry forest in summer is a terrible thing.

The forest rule is that there must be no smoking in a car that is moving through the forest.

We climb the fire watcher's tower again. It is the same one we climbed in March. We are more than fifty miles from the ocean. The mountain is so high that we are a mile above the level of the seashore. It is a clear day. We see the ocean, and we can even see an island out in the ocean.

There is no snow at the foot of the tower now. The mountain on which we stand is green with pine trees. Below it, much of the land is brown, but there is a green strip that reaches from the foot of the mountain to the sea.

"See that green strip?" says Mr. Gray. "That is the river valley. In summer very little water runs down that river. We use every drop we can get to irrigate our orchards and alfalfa fields. That green strip is the land we irrigate. The darkest part is the orange orchards. Some of the green is hayfields. Some is truck farms growing vegetables for the city people.

"Our Mediterranean climate is an excellent climate for fruit," says Mr. Gray. "If we can get enough water to irrigate the orchards, we can grow wonderful crops."

If—if they can just get enough water! That is where irrigation comes in. The people who live in the Mediterranean climate go to great trouble to bring water to their farms and orchards for irrigation. The farmers dig canals and ditches. Sometimes the California fruit growers lay pipes to carry water to their fruit trees.

Some of the water is pumped out of wells, some of it is kept in reservoirs that hold water from the rains of winter until it is wanted in summer. But most of the irrigation water comes from snow which melts on the mountainsides in spring and summer.

In winter it rains on the orange groves. While it is raining on the orange trees at the foot of the mountain, snow is falling on the top of the same mountain.

The fruit growers and farmers in the lowland watch the snow on the mountain. Early in April, Mr. Gray is delighted to see that the snow cover comes far down on the side of the mountain.

"Lots of snow this year," says Mr. Gray. "We shall have plenty of water for irrigation next summer when the snow melts. The rivers will run with water from snow in June and July. The farmers will have fine crops of fruit and plenty of hay."

1. What has caused the grass in California to turn brown early in summer?
2. On a globe or a map, find the Mediterranean Sea. What kind of weather or climate is there on the shores of this sea?
3. Now find the part of North America that has the Mediterranean climate.
4. From where does most of the water for irrigation come?

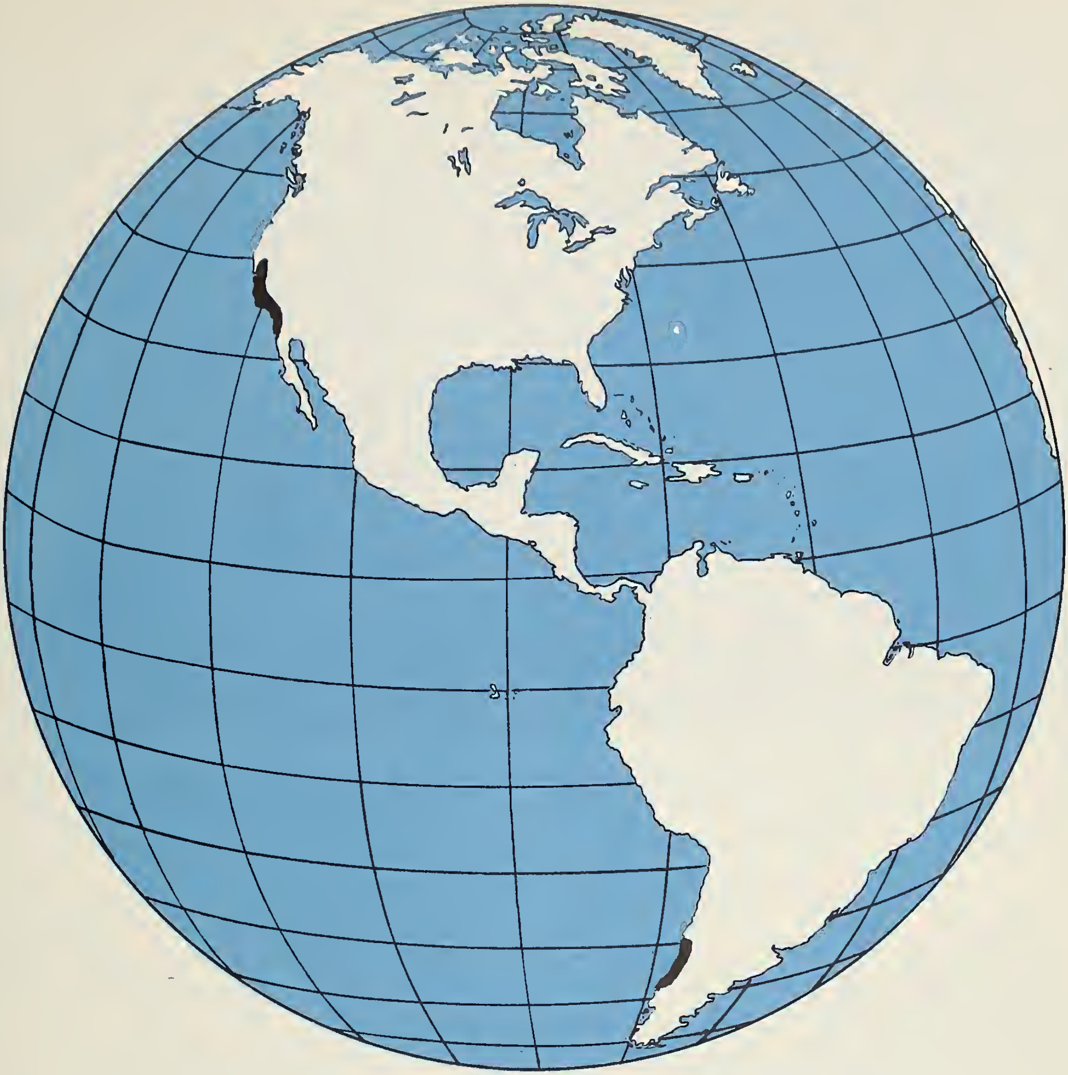
Mr. Gray's Orange Grove

Our California friend, Mr. Gray, grows oranges and sells them. That is his business. He sells a few Lima beans some years, but he gets nearly all of his money by selling oranges. With his orange money, he goes to the grocery store, the clothing store, the shoe store, the drug store, the doctor, the garage, the filling station, to the carpenter, the plumber, and to the people who sell him the things he needs in growing oranges. With this orange money, he buys things that come from many farms, from many factories, and from countries across the seas.

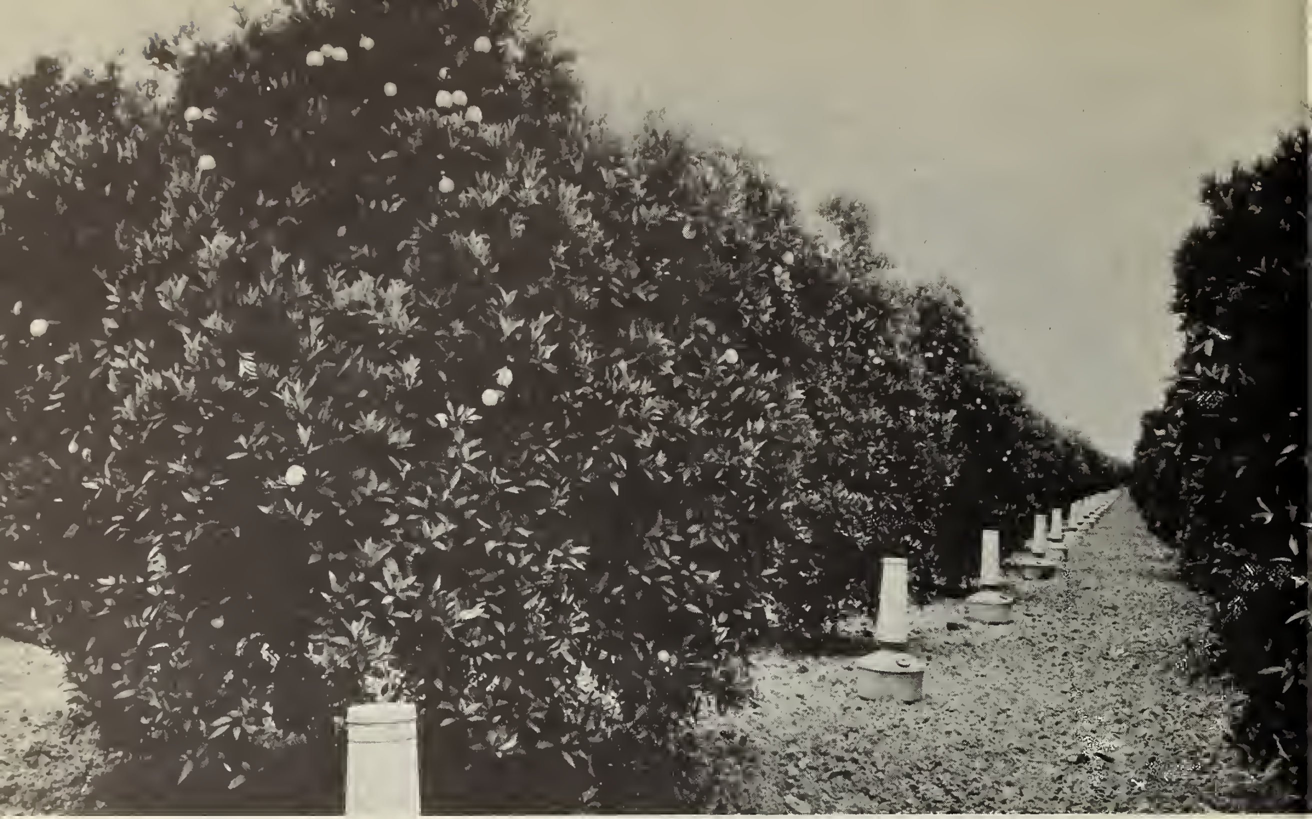
If Mr. Gray has a big crop of oranges, and gets a high price for them, the Grays have new clothes, perhaps a new car, and money in the bank. But they all feel very poor when the orange crop is small and the price is low.

Mr. Gray has a grove of large trees that are in full bearing. He also has a grove of young trees not yet large enough to bear fruit. Mr. Gray's young orange trees stand about twenty feet apart. The little trees look lonesome standing so far apart, but they will grow big. When they are big, the tractor will have to go between them. While the orange trees are small, Mr. Gray grows a few rows of Lima beans on the ground between the orange trees.

Several times during the summer he runs water along the furrows between



The areas in the Western Hemisphere with Mediterranean climate are small in size compared with the areas of Corn Belt land. However, all kinds of fruit go from these areas to all parts of the world.



Gendreau

Orchard heaters are used in California lemon and orange groves to protect the fruit from frost during the winter months. Warnings are broadcast each evening during cold weather, telling growers which area may suffer from frost. Oil is burned for fuel in this type of heater.

the beans and near the orange trees. The oranges trees grow many new branches, and the bean vines give him ripe beans to sell in the autumn. Then the disking machine will dig the bean vines into the ground. The vines will be plant food for the orange trees.

Mr. Gray expects to grow beans between his young orange trees for three or four summers. By that time, the trees will need all of the room and all of the water. He expects to get a box full of oranges from each tree when it is five years old. When the trees are fully grown, he expects to get three or four boxes of fruit from every tree each year.

The orange trees are beautiful with their glossy, dark green leaves and yellow fruit. The blossoms have a pleasant smell. Mr. Gray enjoys his beautiful grove, but he says it takes a lot of work and careful planning to grow oranges.

It takes many different kinds of work to build a house, to make a shoe, or a suit of clothes. Also Mr. Gray must do many different kinds of work each year to make one good orange or a crop of oranges.

In winter, he spends many days among his trees, working with clippers and a small saw. He cuts out dead branches and some living branches to keep the tree from getting too thick. If the tree has too many branches, the oranges will rub against them as the wind blows the trees. This makes scars on the oranges. Oranges with scars bring a poor price and cannot be shipped to other states.

Several times each summer, Mr. Gray cultivates the ground between the trees.

He does this to kill weeds. He does not want the weeds to take plant food and water that the orange trees might use.

Orange trees sometimes have rusty-looking leaves. The rust is an enemy that causes some leaves to fall from the tree. Trees with rusty leaves will not have so many oranges. Mr. Gray has to get rid of the leaf rust.

There is one enemy of the orange tree that spray cannot get. This enemy is a small insect that makes a cover or little tent over itself. The spray cannot get him under his tiny tent. But wait! Poison gas can get him.

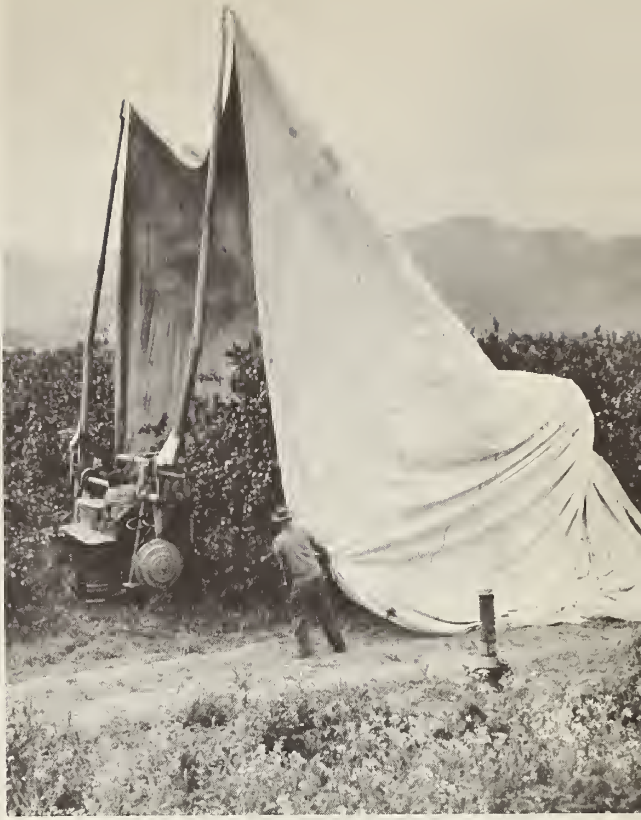
Once a year, the "poison-gas-man" comes to the grove, puts a big canvas tent over each tree, and with a machine, blows poison gas under the tent. The gas kills the scale insects on that tree. Every tree in the orchard gets poison gas under the tent.

1. Why can we call oranges Mr. Gray's "money crop"?
2. Name four kinds of work that must be done each year in order to have a good crop of oranges.

When Fruit Is Ripe

When the oranges are ripe, the picker holds each orange carefully in one hand and cuts the stem that holds it to the branch. Many orange pickers come to help Mr. Gray harvest his crop. Mr. Gray sends truckloads of fine, yellow fruit to the nearby packing house. At this packing house, the oranges from many groves are placed in boxes with great care. Perhaps you have seen a box of these oranges.

There are many packing houses for oranges in the part of California that has the Mediterranean climate. Each house packs for many growers. There usually is a railway track beside the



Caterpillar Tractor Co.

Cultivating and fumigating are important in keeping orange and lemon groves in good production. Tractors are used in the work. Cyanide gas is used to kill the scale insects.

Caterpillar Tractor Co.

Food Machine Corp.

Workers clip the ripe oranges from the trees and take them to packing houses. Here other workers wash, disinfect, dry, polish, grade, size, wrap, pack, and send the fruit to markets around the world.

packing house and whole trainloads of oranges go rolling along from California to many other places.

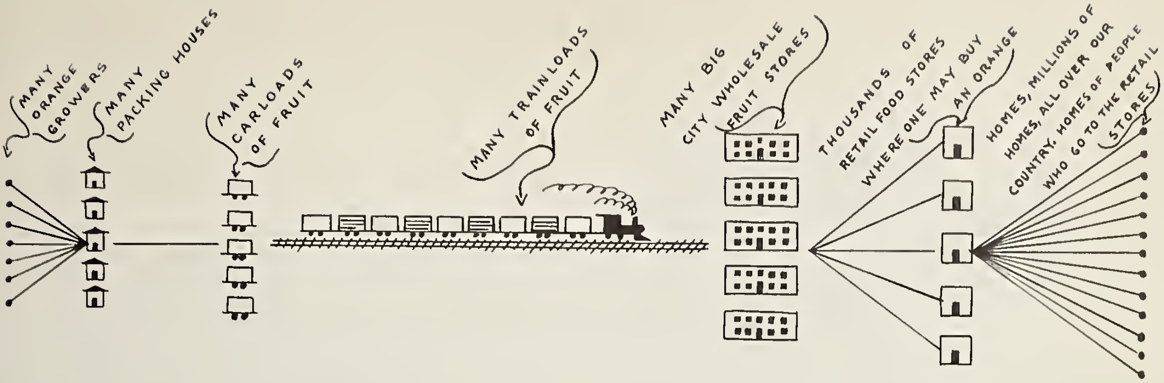
In a few days after Mr. Gray's oranges go to the packing house, they are far, far away from his grove. The oranges have traveled by train two days, three days, four days, or even five days. Some of them may come to the store where your family buys food.

The people of southern and central California also grow lemons and grapefruit. The trees that produce these two kinds of fruit are cousins of the orange tree. These three trees look so much alike that you might not be able to tell one from another unless you saw the fruit. The fruits of these three trees are called citrus fruits. Some of Mr. Gray's neighbors grow grapefruit.

We who live in the United States are lucky people in many ways. One way in which we are lucky is that we have three states that grow a lot of citrus fruit. Mr. Gray lives in California, but whole trainloads of citrus fruit are shipped from the state of Florida and whole trainloads of citrus fruit are shipped from the state of Texas.

These three citrus fruit growing states are in different parts of our country. This makes it easy for all of us to get citrus fruits.

You remember that summer in the Mediterranean climate has few clouds, a lot of bright sunshine, and no rain. That just suits many kinds of fruit trees if they can get enough water. And it suits the fruit grower, too, because there is no rainy weather to bother him.


MANY ORANGE GROWERS
MANY PACKING HOUSES
MANY CARLOADS OF FRUIT
MANY TRAINLOADS OF FRUIT
MANY BIG CITY WHOLESALE FRUIT STORES
THOUSANDS OF RETAIL FOOD STORES WHERE ONE MAY BUY AN ORANGE
HOMES, MILLIONS OF HOMES, ALL OVER OUR COUNTRY. HOMES OF PEOPLE WHO GO TO THE RETAIL STORES

The farmers of California grow citrus fruits, but they also grow other kinds of fruit. The fruit growers of some neighborhoods have peach orchards. Some neighborhoods have pear orchards, some apricots, some plums. Some grow grapes and have rows and rows of grapevines. The water from melting snow on the mountains is very important for all of these crops.

There is so much fruit in the summer season that it cannot all be eaten as soon as it is ripe. We travel in our automobile for days through the lands where fruit is grown. We pass orchards and orchards and orchards and such big packing houses! We wonder if there are enough people in the world to eat so much fruit. Do we ourselves eat fruit as we go? We never ate so much fruit in our lives.

"Now here's a new kind of peach," says a peach grower. "Do try it." We eat one. "Now here is another new one. See how you like that. And here is a fruit that is half peach and half plum. Do try it! I think it is especially good, don't you?"

Then the pear grower on the other side of the road wants us to taste his pears. Half a mile farther along, we must eat some apricots.

"Now, how do you like this red one?" says the apricot grower.

It is a good thing for the people of this country that there are several ways of keeping fruit until it is wanted. Much of it goes to canning factories, near the orchards. Fruit that will not keep more than a few days may be put into cans. It will keep then for many months. You can see it on the shelves and counters in any grocery store.

Another way of keeping fruit is to dry it. Dried fruit will keep for a long

North of California are other fruit-growing areas. The valleys of Oregon produce more than four-fifths of the world's crop of small fruits.

Caterpillar Tractor Co.

time. The dry summer weather of California is a great help to the fruit growers. They can cut off their bunches of grapes and lay them on trays in the summer sun. In a few days the hot sun dries the grapes. Dried grapes are called raisins.

The peach grower splits his peaches in two pieces, and lays the halves on trays in the sun to dry. The apricot grower dries his apricots. The fig grower dries his figs. The plum grower dries his plums, and then he calls them prunes. In almost any grocery store, almost anywhere in the United States, one can buy fresh fruit, or canned fruit, or dried fruit which has traveled hundreds, or even thousands of miles.

1. Have you ever picked any kind of fruit? In what ways is picking oranges different from picking other fruits?

2. How is water from melting snow on the mountains important to California fruit growers?

3. Canning and drying fruit are two ways of keeping fruit. Do you know of any other ways?

Some Things to Do

1. Discuss these words and phrases with your classmates. Use them in writing whenever you can.

grove
navel oranges
Valencia oranges
budding trees
irrigation
Mediterranean climate
spraying
citrus fruits

2. Have you seen pictures or read a story about fruit growing in Florida and in Texas? How are the climate and land surface in these states different from California?

3. Draw and color pictures of the three kinds of citrus fruit. Write the name of each under its picture.

4. Ask your grocer to let you examine some cans of fruit from his shelves. Look at the labels on the cans and make a list of the states in which they were packed.

5. Draw a map of a part of California showing the lowlands along the seacoast and the mountains inland. Show the snow on the mountains, the trees on the slopes, and the brown land below the trees. Show the green river valley at the foot of the mountain. Explain to someone at home what the picture tells about California.

A Short Quiz

Here are some sentences from which words have been omitted. Copy the sentences and fill in the blanks with the correct words.

1. Winter in the lands of fruit is ______ and ______.
2. There is no rain during the long ______.
3. The hot sun is helpful in ______ fruit.
4. In order to have many good fruit trees, twigs are taken from one good tree and ______ to other trees.
5. Bringing water to growing plants is called ______.
6. Weather that has warm, dry summers and mild, rainy winters is ______ weather or climate.
7. Many citrus fruits are grown in the states of ______, ______, and ______.

Sovfoto

Chapter 17

Other Lands with Mediterranean Climate

A Journey around the Mediterranean Sea

Let us suppose we take a steamship journey around the Mediterranean Sea in August. Our ship sails from the Atlantic Ocean into the Mediterranean Sea.

The ship stops at seven cities. We leave the ship at each of the cities, and stay all day on the land. At each place, we take a long automobile ride to see the country and the farms and the villages that lie back of the city.

At every place, the hot August sun shines brightly. Few clouds are seen. The ground is dusty, the fields are brown, the grass is dead—except where the people have found enough water to irrigate the land.

How different it is where there is water and irrigation! Where there is water, there also is greenness—green vegetables in the gardens, and green alfalfa in the meadows where the cow feed grows. We see the dark green leaves of the orange trees, and the bright, ripe oranges hanging on the trees. There are peach orchards and apricot orchards and fig orchards, and trays of fruit are drying in the sun.

Near every one of the seven cities there is lowland near the seashore. Here is the irrigated land. As we drive away from every one of the cities, we soon come to hills or mountains. The streams of water that flow down from the mountains irrigate the level land near the sea.

In each of the cities, we take a walk along the places where ships load and unload. We see ships being loaded with oranges, lemons, grapefruit, peaches, grapes, onions, new potatoes, and other vegetables.

These ships will carry this good, fresh food to the cities of France, England, Germany, Sweden, and other European countries which do not have the Mediterranean climate. Railroads carry carloads of warm-land fruit from the northern shores of the Mediterranean Sea northward into Switzerland and the other countries in the part of Europe that have a cold winter and cannot grow these fruits. This is a very important business for the people who live near the Mediterranean. It is also important for the thousands of people who need the fruit, but cannot grow it in their own countries.

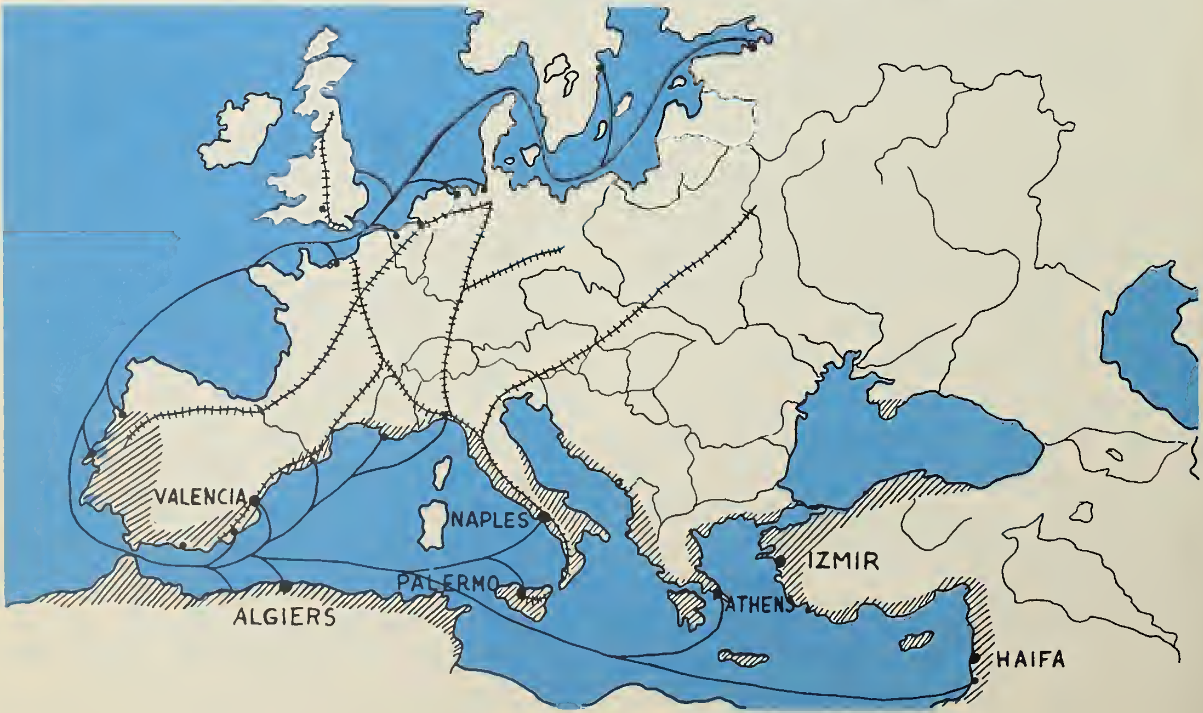
There are mountains all along the northern shore of the Mediterranean Sea. They keep the cold winds away from the little valleys of warm fruit land between these mountains and the sea. Perhaps you remember something like that in California.

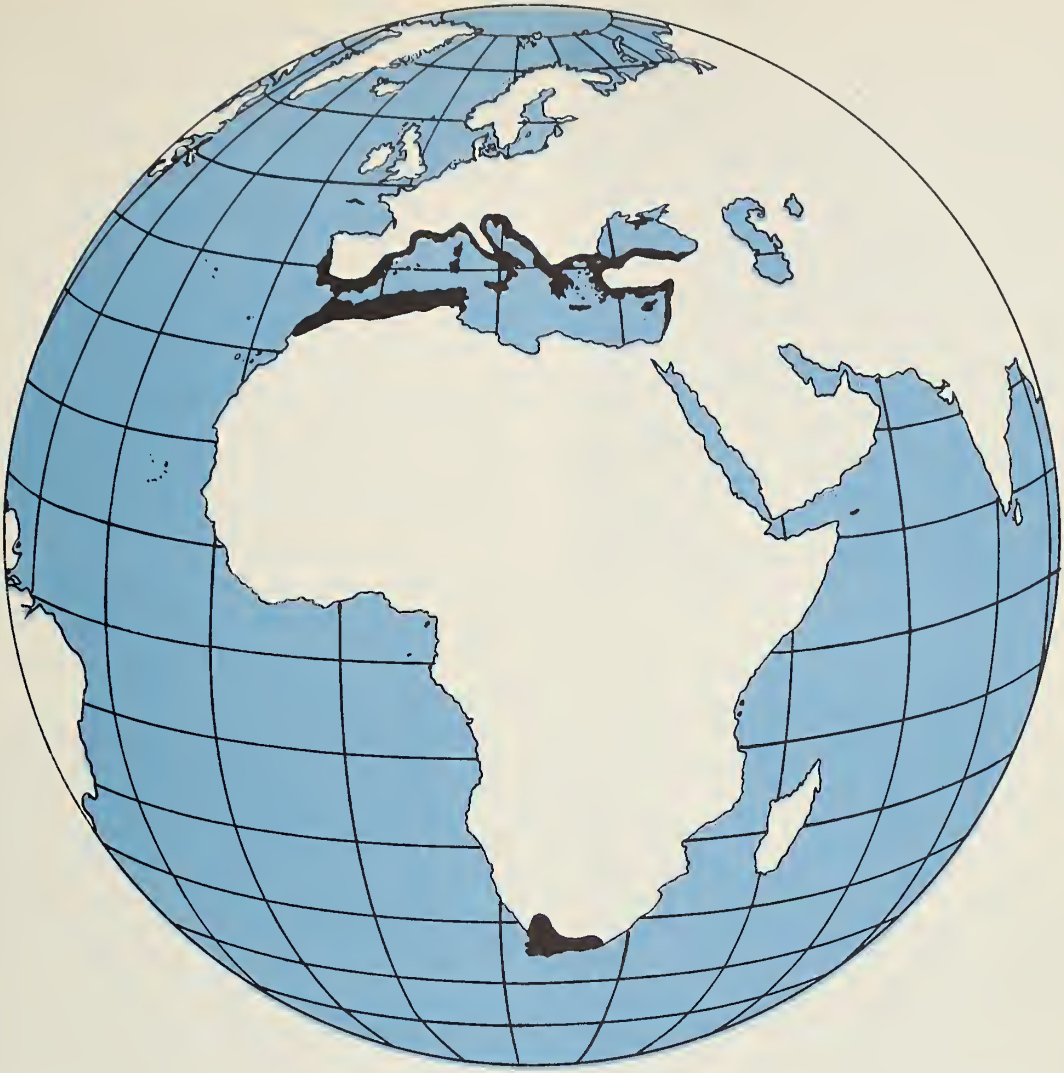
These Mediterranean lands have the same kind of hot, dry summer and the same mild, rainy winter that we find in a part of California. Now you understand why we see so much fruit as we travel about the Mediterranean.

If we should make this journey around the Mediterranean Sea again in March, we would say to ourselves, "The country near these cities looks so very much like the country we saw in California in March. Here are the same green grass, the same flowers in yards and fields, and blossoms on fruit trees."

You remember that Mr. Gray in California spends a part of his orange money to buy things which grow or are made in many distant places. The list of things that the Gray family buys is very much like the list that the Jenkins family buys. It is also very much like the list of things bought by people in your neighborhood.

Mediterranean boats stop at each of these seven cities and automobiles or trains will take you into the country. What kinds of scenes would you expect to see in and around these cities?





Fruit growing lands in Europe and in North Africa are along the shores of the Mediterranean Sea. There is also an area with Mediterranean climate in South Africa.

Holmes from Galloway

Australian Commonwealth Immigration Office

Much of the fruit is canned or dried to preserve it for the long journey from Australia to England and Europe. Fruits are shipped also from Palestine. Here the fruit lands must be irrigated.

United Palestine Appeal

It is the same in the parts of Europe, and in the parts of Africa, and the parts of Asia that have the Mediterranean climate. The fruit growers who live near the shores of the Mediterranean Sea buy things from many countries in Europe. They use their fruit money to buy some things from our country and from countries in other continents.

People have been living along the shores of the Mediterranean Sea for a long, long time. They were growing fruit in that Mediterranean climate for hundreds and hundreds of years before we began to grow it in California. We may say that the fruit industry moved from the Mediterranean countries to the part of North America that has the Mediterranean climate.

People from the countries near the Mediterranean Sea came to our country to live. They were pleased to find a place in the United States that had the mild, wet winters and hot, dry summers that they had had in their old homes. These people sent to their old homes in Spain, Italy, or Greece to get young trees and vines that grew there.

They brought these to southern California and central California. The trees and plants liked their new home. They grew well there. The people of California grew these fruits for their own use. They did this for a long time before there was a railroad from California to the eastern part of our country. When the railroad was built from California to the eastern part of our country, the farmers in California began to ship fruit to eastern cities. Then they began to plant large orchards or "groves."

For a long time we had no lemon orchards in the United States. We bought our lemons from Italy. The farmers in Italy sent us thousands and thousands of boxes of lemons every year. Sometimes whole shiploads of lemons came to the United States. Finally we got lemon trees from Italy. After the railroads were built, we planted many lemon orchards in California.

Now we grow our own lemons. We do not need to buy lemons from Italy. The Italian farmers are sorry about this. They have lost a market because we are growing lemons for ourselves.

1. What do you think the people in the Mediterranean fruit lands buy from the factories in Europe and the United States?

2. How is a part of California like a part of Europe?

3. Explain why Italians were sorry when we began to grow lemons in the United States.

Fruit in the Far South

People from Europe have gone to all parts of the world, hunting for good places to make homes and in which to make a living. Europeans found Mediterranean climate in South America, in South Africa, and in Australia.

Very few people were living in these places when the people from Europe first saw them. So people from Europe

Algeria is a big producer of grapes for the markets in France. These workers are spraying a vineyard with tank chemicals. Compare this scene with one showing orchard spraying in the United States.

Holmes from Galloway

went to each one of these three places to live. They made gardens and farms. They built houses and villages. They took fruit trees and vines from the Mediterranean countries and planted them in these far-away lands with Mediterranean climate.

The trees and vines liked the new home. It had the same mild, rainy winter and the same hot, dry summer that they had had in the old home. The Mediterranean fruits and other crops did well in their new homes, just as they did in California.

The part of South America that has this climate is in a country called Chile. If you should go to this part of Chile, you would see in the distance a high mountain. As far as you could see, its top would be covered with snow. In the valley at the foot of the mountain in Chile, you would see large groves of oranges, and orchards of peaches, pears, and other fruits. You would see rows and rows of grapevines. You would see the farmers picking the fruit and packing it to send to the city markets. You would see them putting the grapes in the sun to dry and turn into raisins.

Suppose your ship sailed to the large city of Valparaiso in Chile. You might see there a surprising sight. You might see the Chilean workmen putting boxes of fruit into the ship to be sent to the United States. We get some fresh fruit from Chile almost every year. Sometimes Chile sends a little of it to Europe, but most of the Chilean fruit is eaten in South America.

Some California fruit goes to countries outside of North America, but most of it stays in the home continent. It is like that in Chile. Most of the fruit of Chile is eaten by the people of South America.

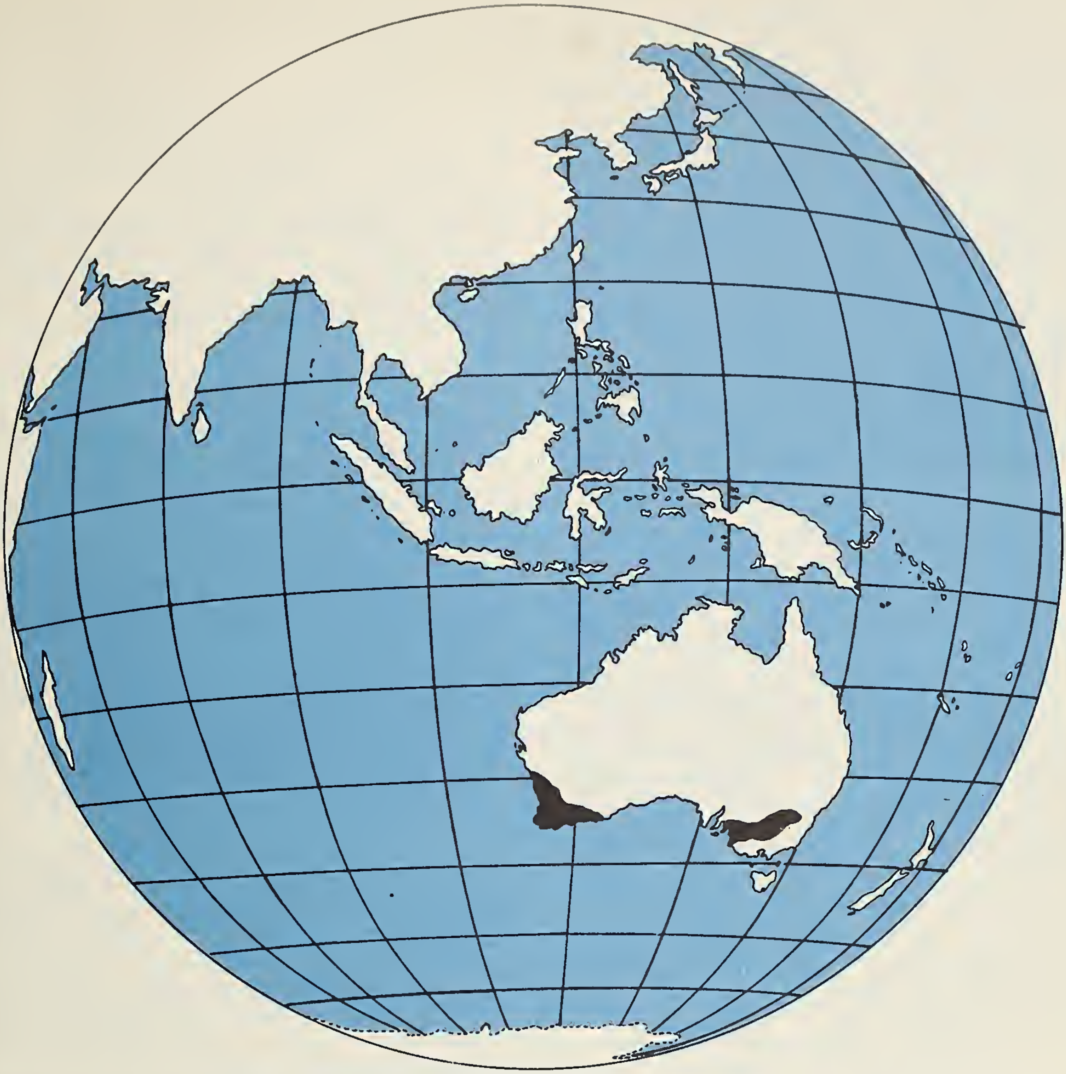
The people in South Africa were growing some citrus fruit and other fruits for a long time before Mrs. Tibbet planted her orange tree. Three hundred years ago, ships from Europe used to sail around Africa on the way to China and the islands near eastern Asia.

There were no steamships in those days, and the sailing vessels were very slow. By the time a sailing ship from Europe reached South Africa, the people on the ship were very hungry for fresh fruit and vegetables. Some people from Europe settled in South Africa and planted orange trees and other fruit trees. These farmers sold the fruit to the hungry sailors who stopped on the way to and from Asia.

The South African farmers kept this up for a long time, and then there was a change. Steamships came. These ships sail rapidly, and can carry fresh oranges to England and other countries in Europe. Now the people in South Africa do the same kind of business that the people in Spain and Italy do. They send fresh fruit and dried fruit to the people of northern Europe.

The good fruitland is really a very small corner of South Africa. That means that the people in most of South Africa must get fruit from the little corner of the continent that has the Mediterranean climate.

The story of fruitgrowing in Australia is much like that in South Africa, except that it did not begin so soon. Australia is about the size of the United States. A small part of this large country has the Mediterranean climate. The farmers who live in this part of Australia grow fruit in much the same way that it is grown in California. The people in this little corner of Australia send fruit to other parts of Australia.



The areas in Australia that have the Mediterranean type climate are in the southern part of the continent. Why is most of the fruit grown here dried or canned before it is sent to other countries?

Australian News and Information Bureau

Australian News and Information Bureau

Grapes are often made into raisins before going on the long journey from Australia to other countries. Work in vineyards is very interesting. You may want to read about it in an encyclopedia.

Some is sent to other countries. It is a very long way from Australia to Europe, but dried fruit and canned fruit make the long journey.

1. Name three continents in the Southern Hemisphere that have Mediterranean climate in some of their parts.

2. Locate Chile, South America, on a globe or a map. Find the city of Valparaiso.

3. Australia sends fruit to Europe. What do you think Europe sends back to pay for the fruit?

Some Things to Do

1. Here are the names of some European countries that buy fruit from the lands with the Mediterranean climate. Learn to write their names.

France Germany
England Sweden
Switzerland

2. Suppose you had gone on a boat trip around the Mediterranean Sea, stopping at the seven cities. Write a letter to someone at home telling what you saw in one of the cities and on one of the automobile rides into the country.

A Short Quiz

Some of these sentences are true and some are false. Copy the true sentences. Rewrite the false sentences so as to make them true.

1. All the fields are brown in the country near the Mediterranean Sea in August.
2. Orange groves are planted on the mountain sides.
3. England grows a lot of fruit because it has a Mediterranean climate.
4. The mountains keep the cold winds away from the lowlands between the mountains and the sea.
5. Farmers in central and southern California planted large orchards when they could ship fruit by railroad to cities in the east.
6. Lemons are sent from our country to Italy because only peaches are grown there.
7. Much fresh fruit is sent from Australia to Europe.

Stories You Will Enjoy

Orchards in All Seasons by writers program, Pennsylvania—A. Whitman

What the World Eats by Ada Ruth Polking-Horne—Houghton

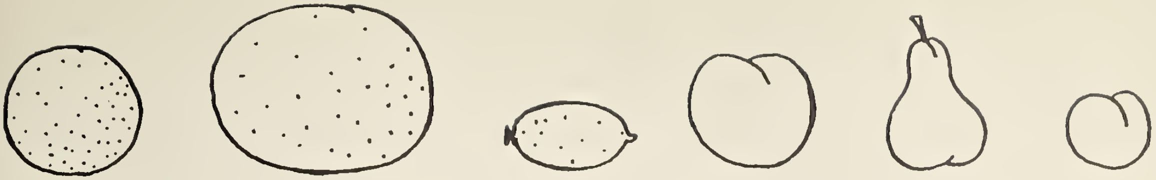
Face West by Margaret Young Lull—Harper

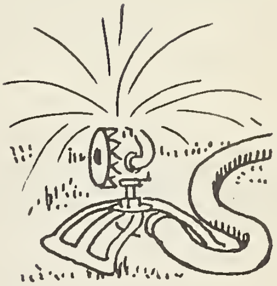
Saturday's Children by Mrs. Helen Coale Crew—Little

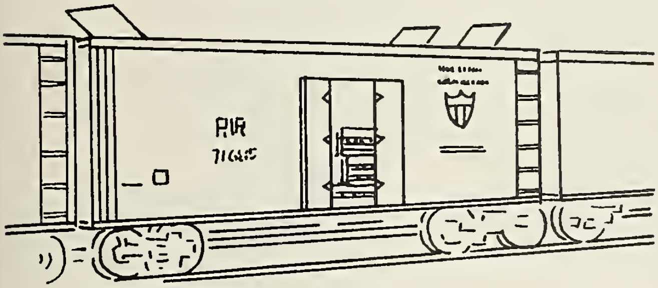
The Handsome Donkey by Mary Gould Davis—Harcourt

Italian Peepshow, and other tales by Eleanor Farjeon—Stokes

Beppo, the Donkey by Rhea Wells—Doubleday



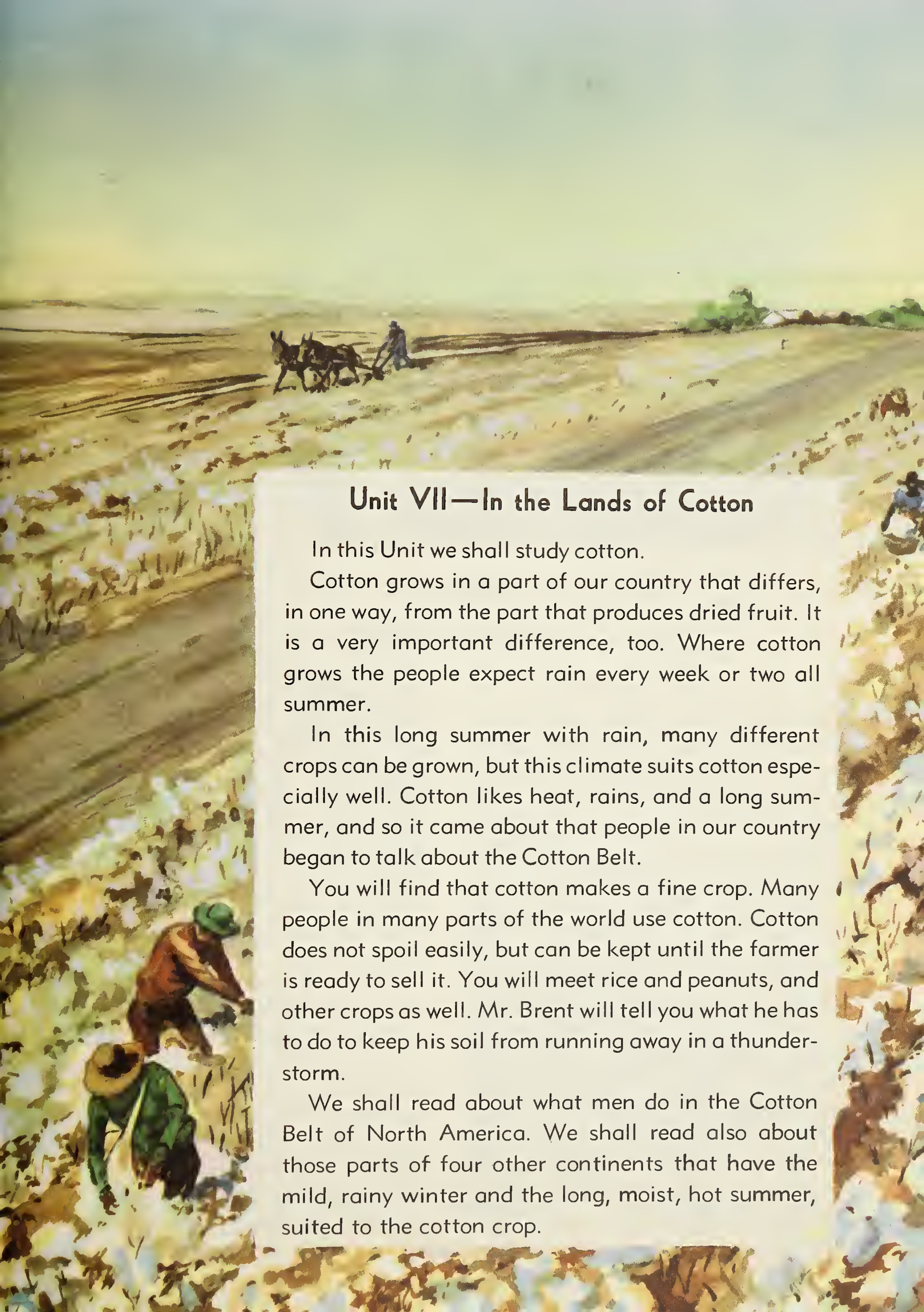




A Summary

1. Why has each of the following been included in the drawings on fruit lands?
   a. fumigation tent
   b. grafting
   c. ripe oranges and blossoms
   d. refrigerated railroad car
   e. vineyard in Italy
   f. lawn sprinkler

2. Write the reasons that make these statements true about lands with mild, rainy winters and dry summers. Use maps, pictures, and the story to find the best answers.
   a. Asia has less land with Mediterranean climate than has Europe or Africa.
   b. People who live in lands with Mediterranean climate fit their crops and work to the weather.
   c. Farm crops must be irrigated in southern California.
   d. Growing fruit is a year-round job for the farmers in California, Texas, and Florida.
   e. The fruit industry has moved from the Mediterranean countries to the parts of North America that have the Mediterranean climate.
   f. Canning, drying, freezing, and dehydrating help fruit growers.



Unit VII—In the Lands of Cotton

In this Unit we shall study cotton.

Cotton grows in a part of our country that differs, in one way, from the part that produces dried fruit. It is a very important difference, too. Where cotton grows the people expect rain every week or two all summer.

In this long summer with rain, many different crops can be grown, but this climate suits cotton especially well. Cotton likes heat, rains, and a long summer, and so it came about that people in our country began to talk about the Cotton Belt.

You will find that cotton makes a fine crop. Many people in many parts of the world use cotton. Cotton does not spoil easily, but can be kept until the farmer is ready to sell it. You will meet rice and peanuts, and other crops as well. Mr. Brent will tell you what he has to do to keep his soil from running away in a thunderstorm.

We shall read about what men do in the Cotton Belt of North America. We shall read also about those parts of four other continents that have the mild, rainy winter and the long, moist, hot summer, suited to the cotton crop.

Keystone View Co.

Chapter 18

Our Cotton Belt

Planting the Cottonfields

Cotton plants are grown on so many of the farms in the southeastern part of our country that it is called the Cotton Belt. Cotton, cotton, cotton, on almost every farm!

But there was not one cotton plant on the Jenkins farm. Why not? It is too cold there in April. It is too cold in October. The low temperature at these times would kill the cotton plant.

The long, warm summer with rains helps farmers in the Cotton Belt. The cotton plant must live a longer time than the corn plant does before it can give us its crop.

Mr. Brent is a farmer who grows cotton. Cotton is as important to Mr. Brent as corn is to Mr. Jenkins. Mr. Brent sells all of his cotton, so he calls it a "money crop."

In March the fields on the Jenkins farm are still frozen. But Mr. Brent with his tractor is deep-plowing his fields. Many of the farmers use horses instead of tractors to work in their cottonfields. But Mr. Brent's farm is very large. He has machines to help with the work.

When the soil is ready for planting, the planting machine puts the seeds all along the rows. It plants many more seeds than will be needed. Then, when the young plants are started, there is the work of thinning.

Thinning the cotton plants is called "chopping" cotton. This is hard work. Mr. Brent, his son Jack, and the helpers go through the fields with hoes. Each person takes a row of cotton. He chops out the weeds between the cotton plants. He chops out some of the plants so there is about ten inches between the plants in the rows. He must pull out some of the little weeds by hand. Chopping must be done before the weeds and plants get too big. They grow quickly in the warm sunshine of the Cotton Belt.

Almost as soon as the chopping is done, the cotton must be hoed. The men go along the rows again with hoes. They dig out the weeds that are starting to grow between the cotton plants.

Soon it is time to cultivate the cotton. This must be done five or six times during the summer. Cultivating breaks up the ground and kills the weeds that would rob the cotton plants. While the plants are small, Mr. Brent uses the tractor to pull the cultivator. When the plants get larger, he uses a horse.

The sunshine and the warm rains help the cotton to grow. When the plant is about three feet tall, the flowers begin to show. The first day the cotton flower is white or a light cream color. It turns pink on the second day and on the third day it turns red. On the fourth day the flower drops off, leaving a little green pod. This pod is called the cotton boll. Toward the end of summer these bolls turn brown. They break open and there, inside the boll, is the white cotton.

1. Find on a globe or a map the Cotton Belt in the United States.
2. Why do you think Mr. Brent can use a tractor to pull the cultivator while the plants are small, but not when they get larger?

Picking Cotton

Cotton picking time is the busiest time of the year in the Cotton Belt. Mr. Brent has a machine to pick his cotton. He waits until most of the bolls are open before he picks cotton. On the smaller farms, the picking is done by hand. Each person has a big sack fastened to his shoulders. Up and down the field he goes, bending down and picking, bending down and picking, until the big sack is full of cotton.

Each week more bolls will be open and more cotton will be ready to pick. The farmers hope there will be no rain during the picking season. Rain may beat the cotton into the dirt and spoil it. Rain may also change the white color of the cotton.

The long, white fibers of cotton are fastened to small brown seeds. These seeds must be taken out before the cotton can be used. People once picked out the seed by hand. This was a very slow way of working. A person who worked all day had only two pounds of cotton. That made cotton very costly.

But now Jack Brent takes a load of the cotton to the cotton gin. The cotton

Picking cotton by hand is still a popular method. Cotton picked by machine is of a lower grade because the machine also picks bolls and leaves.

Keystone View Co.

gin is a machine that picks the little brown seeds out of the cotton. Jack throws baskets full of cotton into the big hopper of the machine. Someone turns on the electric motor. In three or four minutes the gin can turn out a big pile of clean, soft, white cotton, and a little pile of brown seeds. There are many gins near the farms in the Cotton Belt.

Mr. Brent sells his cotton seed to a man who has a cottonseed mill. The seeds are put into a machine that grinds them into tiny bits. The ground seeds are put into another machine called a press. The press squeezes the ground-up seeds very, very hard. This squeezes out the oil. Perhaps you have used some of the oil in soap. You may have eaten some of it in salad oil, or in shortening.

The part of the seed that is left after the oil is squeezed out makes a hard cake. This cake is ground into cottonseed meal. Carloads of this meal go from the Cotton Belt to all parts of the country. Cottonseed meal is very good feed for cattle. Mr. Jenkins may buy some of this meal for his cattle. Dairy farmers often buy it for cows. How the cows do like it!

But what about the part that is left, the cotton lint or fiber? It is put into a cotton press. This press squeezes a big pile of soft, light cotton into a hard bale. When the bale is covered with cloth, it is ready to be sent to market.

Mr. Brent sells his bales of cotton to a broker. A cotton broker buys cotton from the farmers and sells it to factories. In the factories the cotton lint, or fiber, is first twisted into threads. There are other machines that weave the thread into cloth. Many uses are made of this cotton cloth. Look at a handkerchief or a shirt or a pair of slacks and you will see cotton cloth. Most of the cotton thread made in this country is woven into cloth that is used for clothing.

The factories that work with the cotton fiber are located in many of our cities, and in cities in other countries. Some of our cotton goes in ships to Europe, some goes to Asia. Cotton cloth made of cotton grown in our Cotton Belt is used in almost every country in the world.

Cotton is grown in other places where the summers are warm and rainy. But there are more cottonfields in our Cotton Belt than in other parts of the world.

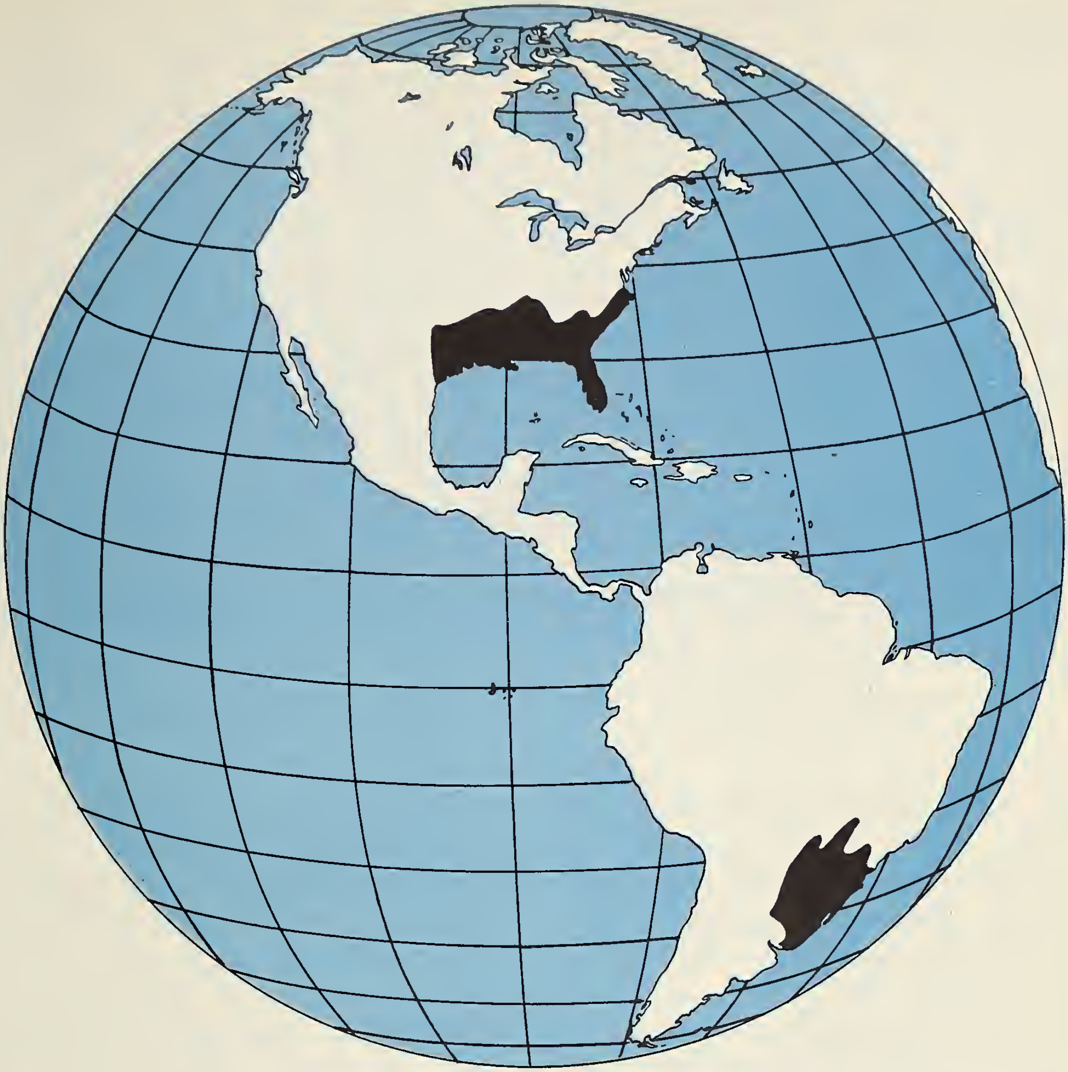
1. Why do the farmers hope there will be no rain during the cotton picking season?
2. Name three uses of the oil from the cotton seed.

Mr. Brent Rotates His Crops

Cotton is a good crop. A bale of cotton keeps well. No bugs eat it. A little wetting does not spoil it. Neither heat nor cold will hurt it. Cotton is as good next year, or the year after, as it is now. The bales can be taken in trucks or trains or ships. They can lie in warehouses for years and the cotton is still good.

Because cotton keeps so well and sells so well, people in the Cotton Belt have sometimes grown nothing but cotton. They would grow cotton and sell it, and then buy everything they used. They did not even have gardens.

Planting the same crop each year is not very good for the soil. It is better to plant different crops in different years. Mr. Brent grows three main crops. The fields that have cotton this year will have corn in them next year. The third year he will plant oats, and in the fourth year he begins again on



What facts about climate do you have in mind when you talk about cotton, tobacco, and rice-growing lands? This map shows the cotton-growing areas in the Americas.

Galloway

From the Collection of J. Russell Smith

Farmers are planting more vetch seed each year to help fertilize the soil for other crops. Vetch grows well on warm days in winter and in the early spring it climbs over last year's cotton stalks.

cotton. This plan is called rotation of crops.

The last time Mr. Brent cultivates the cotton, he sows vetch seed between the rows. Vetch is a winter plant. Frost does not hurt it. Vetch grows well on warm days in winter. In spring vetch grows very fast. The plants climb to the top of the old cotton stalks.

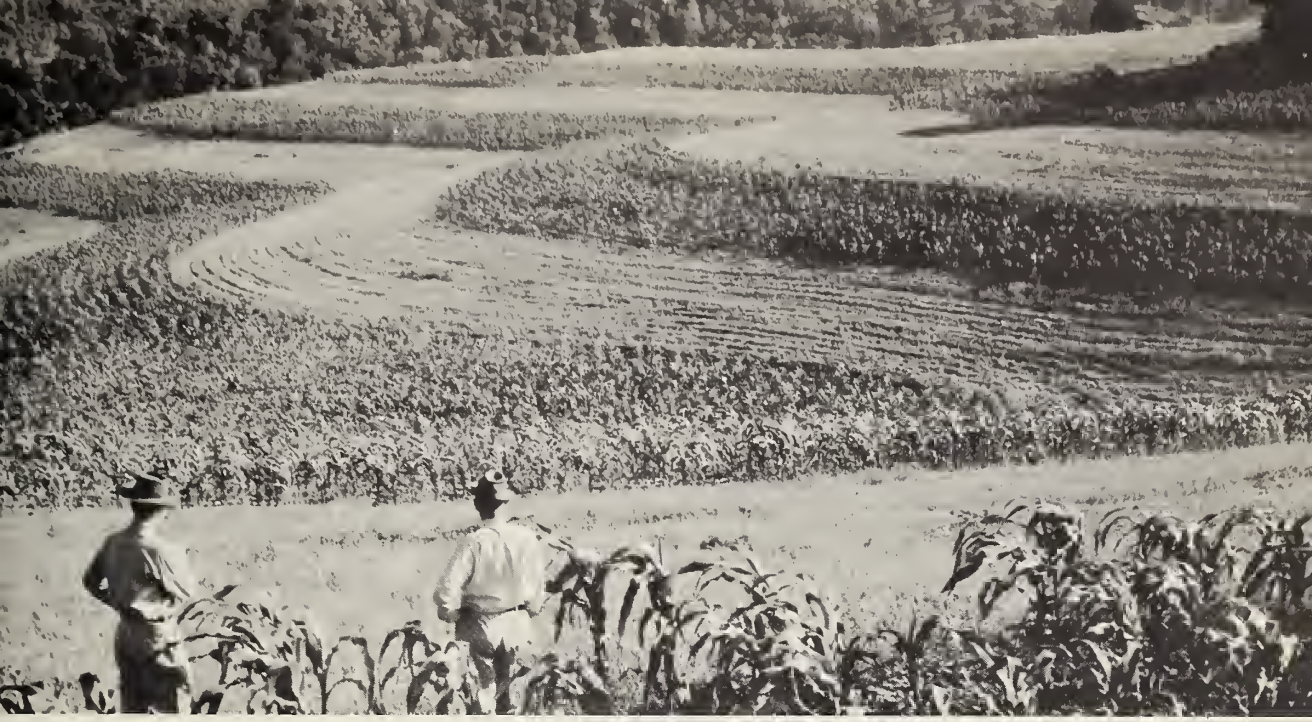
Mr. Brent plows the field with its big crop of vetch and the old cotton stalks. The stalks and vetch are turned under and covered with soil. They decay and the vetch becomes food for plants. The corn plant eats the food put in the soil by the vetch plant and grows big and strong and has big ears of corn.

When Mr. Brent cultivates the corn for the last time, he sows the seed of a tall-growing pea. It grows between the corn plants and is plowed under after the corn is cut. The pea stalks decay like the vetch plant, and feed the oats which are planted for next year's crop.

The peas that Mr. Brent sows in his corn, and the vetch that he sows in the cotton are called cover crops. He uses cover crops every year in his corn and cotton fields. He also buys many sacks of fertilizer to help feed the corn and other crops. This way of farming is good. Mr. Brent's land gets better and he gets better crops.

There is one thing of which the whole Brent family is very proud. It is a prize they were given for growing three-fourths of all the food they eat. They also grow three-fourths of all the feed eaten by the animals on their farm. This is a part of what is called "The Live-at-Home Plan."

Some of the oats and corn are used to feed the horses, cows, pigs, and hens. Jack feeds one pig for himself. Mr. Brent says Jack may have the money he gets when he sells the pig. Jack's sister takes care of the chickens. She gets part of the money from the sale of



Alabama Chamber of Commerce

In order to prevent soil erosion on a sloping field, crops are planted in contours, or curves. Crop rotation is practiced in each contour. In this field, corn, small grains, and hay are rotated.

some of the eggs and chickens. The cows supply the family with all the milk and butter they need. Sometimes Mrs. Brent sells some of the butter. The pigs supply most of the family's meat. There are sausages, hams, bacon, and lard. The mill in town grinds some of the Brent corn into corn meal. Mrs. Brent makes good corn bread. Jack and his sister like corn bread and pork chops for supper.

The Brents also have a garden. This garden helps to feed them every month in the year. There are fresh vegetables in summer and autumn and home-canned vegetables in winter and spring. In the autumn Mrs. Brent fills the shelves with cans of peas, beans, tomatoes, corn, and beets.

In the yard around the house are four large pecan trees. They are taller than the house now. Grandfather Brent planted these trees almost forty years ago. Nuts from the pecan trees taste very good. Some years there may be a hundred pounds of pecans to sell. But they do not sell all of them. The Brent children have pecans all winter.

Feeding the soil by planting cover crops and using fertilizer makes farm land better. Growing most of the food needed by the family and by the animals is a good way to live in our farm belts.

1. What crops does Mr. Brent rotate in his fields?
2. Why does Mr. Brent plant vetch and other cover crops?
3. Have you ever eaten pecans? Where did you get them, from a store or did you pick them from a tree?

Saving the Topsoil

Corn and cotton are always planted in rows, and the rows are several feet apart. We call them row crops. Wheat plants and oats plants stand close together. Mr. Brent cultivates the row crops while they are growing. But he does not cultivate wheat or oats.

What happens when heavy rain falls on a field of corn or cotton? The cultivator has made the earth soft and loose. The rain water runs down the rows and carries the soft earth away.

What happens when a heavy rain falls on a field of wheat? The many wheat plants, standing close together, have many little roots. These little roots hold the soil and the rain does not wash much of it away.

The Cotton Belt has heavy thunderstorms in summer. Sometimes two or three inches of rain fall in an hour. The water runs down the hills and cuts deep gullies as it runs. In one summer the rains can carry away wagonloads of good topsoil from one small field. This topsoil has most of the food needed by the plants. When it is washed away, the cotton and corn plants do not get enough to eat. They cannot grow big and strong and the crops are small.

Mr. Brent's father used to think about this. He said it hurt him to see our good land being washed away by every rain that came.

"This is God's earth," he used to tell his neighbors. "It is a sin to destroy land and that is what you do when you plant your cotton rows and your corn rows up and down the hill. Your plow breaks the topsoil. That lets the land wash away. That spoils the field. That makes our country poorer. That makes our country smaller. People cannot live where land has washed away. We must make our rows so that the water can't run down and wash our farms away."

So Grandfather Brent made his rows go around the hills instead of up and down. Then water that fell between the rows of cotton did not run away. It stayed there and went into the ground. If there was so much rain that some of it had to run away, there was a terrace to hold the water.

The terrace is made by plowing up a ridge of earth. This ridge or terrace holds the water until it can soak into the ground. If there is more water than the terrace can hold, it runs out slowly at the end. The water does not cut any gullies or carry away good soil.

When Mr. Brent grew up, he took his father's farm. He kept on making the rows and terraces around the hills. Mr. Brent is building up his land by using cover crops and fertilizer. He also is saving part of our country by keeping the rains from washing away topsoil.

1. Why is topsoil the best soil for plants?
2. Why can the rain wash away much of the topsoil in a cotton or corn field, and not so much in a wheat or oats field?

A Land of Many Crops

The part of our country that has mild, rainy winters and warm, rainy summers is very large. It is a very useful part of our country.

Many different kinds of crops can be grown in the long, warm summer with rains. We read about the cotton farming because there is more cotton grown here than any other crop. Cotton is the greatest single crop that is grown in all this part of our country.

Rice is one of the other crops that are grown here. A rice field ready to be planted looks very much like a wheatfield ready to be planted.

A farmer plants his rice field very much as the wheat grower plants his wheat. But the rice field has a low bank of earth on all sides. When he has finished planting rice, the farmer turns water in and makes the whole rice field into a pond. The bank of earth holds the water there. Rice likes to grow in

Soil Conservation Service

Land that is planted without any thought of saving the good topsoil soon has little value as farm land. Contour plowing, building terraces to slow the force of flowing rain water, and planting cover crops, such as vetch and kudsu, are some of the ways to prevent soil erosion.

From the collection of J. Russell Smith (below)

Keystone View Co.

Cotton gins separate the little brown seeds from the cotton fibers. The clean cotton is baled.

water. When the rice crop is ready to be cut, the farmer opens the bank of earth that holds the water on the field. The water runs away and the ground dries.

The rice is now ready to be cut. Rice is cut and threshed in almost the same way that Mr. Jenkins cuts and threshes his oats and wheat.

Our Southland has another crop that boys and girls like—peanuts. We are growing and using more and more peanuts every year. People like the taste of them and we know now that they are a good food.

When peanuts went to the food factory, we began to learn new ways of using them. Someone shelled peanuts, cooked them a little, and salted them. Now salted peanuts are sold in many towns. Another man ground up the nuts very fine. This made a paste he called peanut butter. Little sandwiches of crackers and peanut butter, with a glass of milk, make a good lunch after school.

The peanut is rich in oil. Mills now crush peanuts and press out the oil. It is very good oil for use in cooking. The cake that is left after the oil is pressed out can be fed to cattle.

The flower of the peanut plant comes above the ground. Then the plant pushes the flower into the earth so that the nut grows under the ground. That is why peanuts are sometimes called "ground nuts." After the peanut plants are plowed out of the ground, they are dried in the sun. Then they are put through a machine that knocks the nuts loose from the vines. The peanuts are put into sacks and shipped to many places. Whole fields of peanuts are grown in the warm part of our country.

Cotton, rice, and peanuts are just a few of the many kinds of crops that are grown in this farming land. Grapefruit, oranges, lemons, sugar cane, and tobacco are some of the other crops. Some farmers grow early vegetables for city markets.

Good soil, warm rains, and mild winters are the reasons the farmers in the South can grow so many different crops.

Peanuts on the plant are dried in the sun.

Oscar A. Simon

1. Name six kinds of crops that grow well in the lands with long, warm, rainy summers and mild, rainy winters.

Some Things to Do

1. Write a little story about cotton. Here is a list of words you will need to use in your story—

deep-plowing
chopping
cotton boll
fibers
bale
seed
oil
broker

2. How would you use the terms—cover crops, gullies, terrace, and rotation—in talking about cottonfields?

3. Add pictures to your scrapbook of living in our Cotton Belt.

4. Write as many names as you can of articles of clothing made from cotton cloth.

A Short Quiz

Copy the sentences below. Choose the word from the parentheses, ( ), that will make each statement correct.

1. The Cotton Belt lies (north, south) of the Corn Belt.
2. The cotton plant needs a (longer, shorter) growing season than the corn plant.
3. The fields for (corn, cotton) are still frozen in March.
4. Cotton bolls break open when they are (green, brown).
5. Picking cotton seed by hand made cotton cost (more, less).
6. Cottonseed meal is (good, poor) feed for dairy cattle.

Seaboard Air Line Railway Co.

Large grapefruit are grown in the Southland.

7. Planting the same crop each year is (good, bad) for the soil.
8. Corn and cotton are (row, cover) crops.
9. Making the rows (around, up) the hills keeps water from washing away the soil.
10. There are (more, fewer) cottonfields in our country than in other parts of the world.

Tobacco plants grow from 4 to 6 feet tall and the leaves may reach a length of 2 or 3 feet.

N. C. State News Bureau

C. N. S. from Guillumette

Chapter 19

Other Lands in the Cotton Belt

The Hills of South China

Other continents have land with weather like that in the southeastern part of our country, where many farmers grow cotton.

Some of these lands with the cotton belt climate are large, and some are small. Some have many people. Some have few people, but they all are alike in five ways—(1) These lands are all on the same eastern side of their continents. (2) They all have a warm, rainy summer. (3) They all have a cool winter. (4) In all of them, the people grow some cotton and some oranges. (5) In all of them, the people can grow many different kinds of crops if they wish to do so.

One of these warm summer lands has more people than all of the others. It is the one in eastern Asia. Most of it is in China.

You learned something about China when you read about Mr. Ling's farm. China is like the United States in two ways—(1) China and the United States are very large countries. (2) They are both such large countries that one part of each country can differ very much from other parts of the same country. We have already learned that in the United States we have a Corn Belt in the cool part of our country, and a Cotton Belt in the warmer part that lies to the south of the Corn Belt. China is like the United States, because it too has a Corn Belt in the cool part of the country, and a Cotton Belt in the warmer part that lies to the south of the Corn Belt.

This chapter gives you a chance to learn more about China. That is good, because no doubt you may hear much more about China. You may be hearing about China on the radio, and you may be reading about it in the newspapers and magazines. If you go to college, you may study about China.

Here are some of the reasons why you will be getting news about the Chinese—

(1) China is the oldest country in the world. The Chinese were on their farms long, long before people from Europe ever heard of North America.

(2) The Chinese learned how to read and write long, long before our families did. And now the young people of China want to know the things that are in the books our people study in school and college. They want to learn how to use machinery.

(3) The Chinese learned long ago how to do very skilful and beautiful work with their hands. The Chinese are the best workers in the world. They make many beautiful things, and now they are learning how to use machinery as we do.

(4) There are more people in China than there are in the United States. That is a very important thing for you to remember. Indeed, there are about three times as many Chinese people as there are people in the United States. The Chinese have lived in the same villages for hundreds and hundreds of years. A Chinese boy's father and grandfather and great-grandfather and even great-great-grandfather all have lived in the same village. The uncles and aunts all have lived there and the great-uncles and great-aunts, and the first cousins and second cousins and third cousins, until China now has many people. That is something we must never forget. China is a land with many, many people.

A man who makes a living on a little farm cannot use his land in the same way that the man does who has a big farm. You learned this as you read about the Corn Belt in China and in the United States.

You remember that the farm of the Chinese who grows corn is much smaller than the Jenkins farm in the American Corn Belt. The farms are also small—very small—in the part of China where cotton grows. China does not have as much level land as our country has. Most of South China is hills, hills, hills. We who write this book have been all the way around the world, but we never saw any other country where men make so many farms in such hilly land.

The people in southern China grow some cotton, but they also buy a lot of cotton from our country. Now here comes a puzzle. Why do the people who live in one cotton belt buy cotton from people who live in another cotton belt? Cotton is grown in both of these cotton

Chinese workers carry bales of cotton to the dock to be sent to market. China is one of the four leading producers of cotton in the world, but her people use most of the cotton crop at home.

Monkmeyer

C. N. S. from Guillumette

A truck farmer in China has a small area in which to grow vegetables. Notice the walls and the roofs of the houses. Why do people of South China keep few cattle or pigs?

belts, but let us see what we learn as we think about the size of the farms in the two cotton belts.

Most of the farms in southern China are on the sides of steep hills. They are steeper than the hills on Mr. Brent's farm. These Chinese hills are steep, but the soil does not wash away.

The hillside is steep, but most of the fields are level. The Chinese people took their shovels and hoes, and dug and shoveled until they had made level places on the hillside. When they had time left from their work, they would go out and make a square yard or two of new, level field. They have worked at it for hundreds of years. They have made little fields one above another until the hillside looks like steps. Some of these little fields are only 10 feet wide. Let us call them step-fields. The step-fields have banks of earth around them. These banks were made of earth which the Chinese put there with their shovels. When rain falls on the little field, the bank keeps the water from running away. This does two things. It holds water for the crops, and it keeps the earth from washing away.

These step-fields have been here on this hillside since long before Mr. Brent's grandfather was born. Some of our cotton farms have washed away, but these Chinese farms are still good. The Chinese take care of their land.

1. To what part of China would you travel to visit their Cotton Belt? Their Corn Belt?
2. Name two ways in which China is like the United States.
3. Farmers grow cotton on the hills of China. Why, then, does China buy cotton from the United States?
4. How does a Chinese farmer keep the soil from washing away on the hills?

C. N. S. from Guillumette

Lumber goes to market. Many of China's rivers are broad and slow-moving. They do not have current enough to carry logs, so workers build rafts of the logs and pole them along in shallow water.

Rice Paddies

What do these Chinese farmers grow in their little step-fields? They can grow cotton and many other crops if they try.

You remember that the Brent family grows most of its own food, and also a lot of cotton. The Brent farm is as big as a dozen of these South China farms. The people who work on these very small Chinese farms have so little land that they cannot grow all the food they need and also all the cotton that they need. It is easier to buy cotton than it is to buy food, so they grow food on most of their land.

If these farmers could do as they wished, they would grow a lot of rice and a lot of cotton. The Chinese people think that rice is the finest food in the world. They would like to eat it at every meal. But in North China there are many people who do not eat it because they cannot get it. It is that way in the Chinese Cotton Belt, too.

It is not easy to grow rice in a hilly country. Rice is a swamp plant. When the Chinese farmer grows rice, he has to have a field that is as level as the floor of a room. Then he builds a little bank of earth around the level field. After this, he must manage to get four or five inches of water into his field, and keep it there for weeks. Now he has a field that the rice plant likes. The rice plant grows best in water.

The little water fields are called paddies. The farmers who live in the hilly country make rice paddies on nearly all the level land at the foot of the hills. They even make paddies of some of the little step-fields. If there is a stream near the step-fields on this mountainside, the farmers dig little ditches along the mountainside, and lead the water from the stream to the field. This makes a pond of the little field. This makes it into a rice field, or paddy.

The little step-fields are not plowed with tractors. They are not plowed with horses or mules or oxen. They are not plowed at all. The farmer digs the earth with his spade. It takes much work to spade up a field, but the man with the little step-fields cannot feed a horse. He cannot hire a horse. Some of his fields are too small for him to use horses.

If the step-field farmer cannot grow rice to eat, his second choice is the sweet potato. The cotton climate is just as good for sweet potatoes as it is for rice or cotton. The sweet potato does not need to grow in water. It is like cotton or corn. Rain is all it needs—rain and cultivation. Hundreds and thousands of step-fields in the Chinese Cotton Belt are planted in sweet potatoes.

If the Chinese farmers in the cotton climate can grow food and also grow cotton, they grow cotton. They all use cotton. Their common clothes are all made of cotton. Even their shoes are made of cotton. But there are so many people in this part of China, and the farms are so small, that they cannot grow all of the cotton they need. That is why they buy so much cotton from the United States and other countries.

Do the Chinese Cotton Belt farmers keep cattle or pigs? Very few indeed. Do the farmers eat meat? Very little indeed. Do they wear leather shoes? Not often. Leather is made of the skins of cattle, sheep, goats, and horses. These animals need much food. It takes more land to provide feed for a horse than it does for a man.

How does the step-field farmer pay for the cotton that he buys from the United States? He sells wood. The hillside on which we see these little fields is at the foot of a mountain. It would take you two hours of hard walking to climb to the top of it. Much of this mountainside is too steep and stony even for step-fields that are no wider than a big table.

It is lucky for people that trees will grow on steep land and rocky mountainsides. This mountainside above the step-fields is covered with pine trees. When the trunks of these pine trees get to be 5 or 6 inches thick, the farmers cut them down.

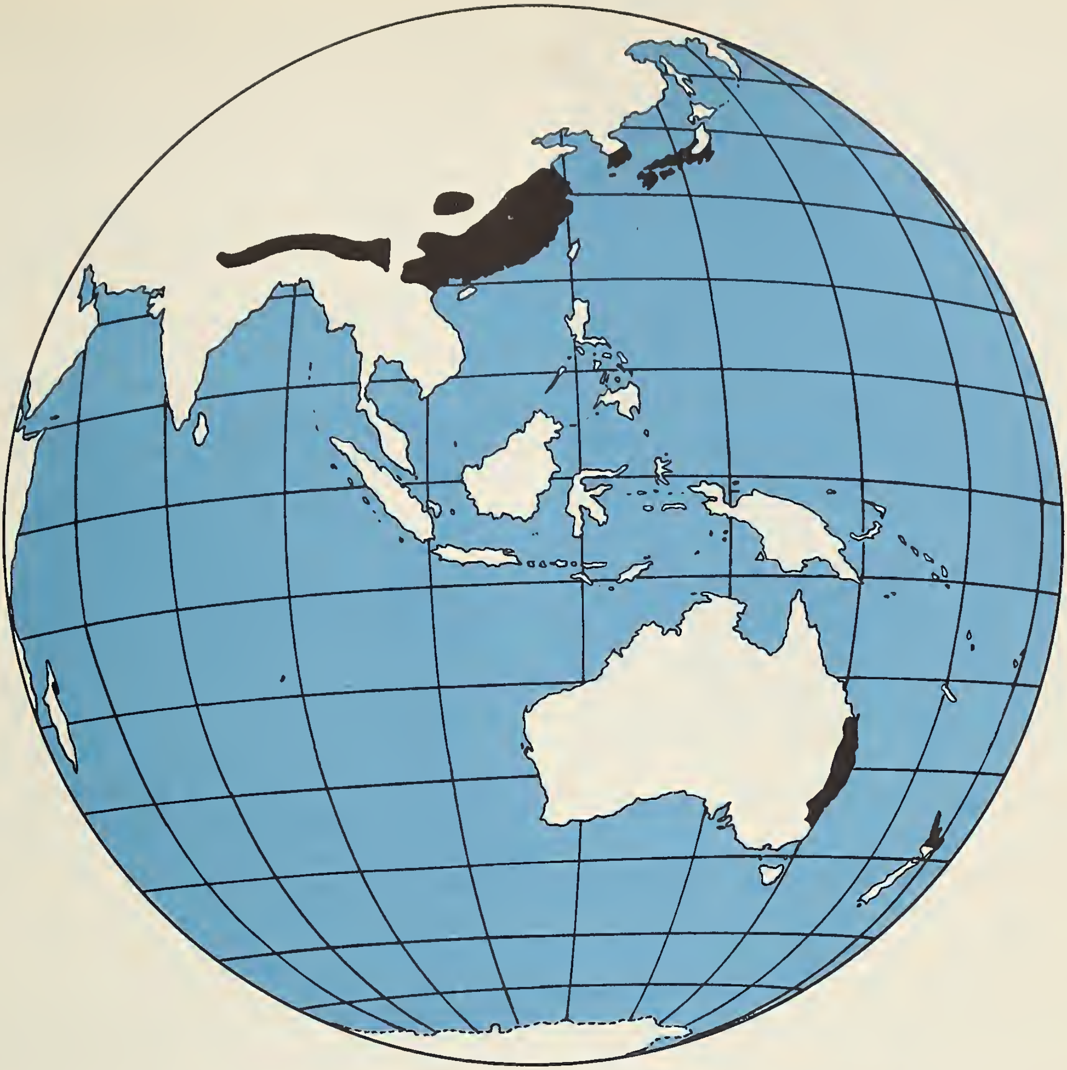
Four men take one of these logs and carry it down to the river. Sometimes they have to carry the log several miles to get it to the river. That is hard work, but it is the only way they have to sell their logs and get money.

After the logs reach the river bank, they float down the river. That is easy. At the mouth of the river, there is a city. Ships from the ocean sail into the mouth of the river. Sometimes these ships unload bales of cotton from the United States. This makes the clothes for people in the Chinese Cotton Belt.

The logs that have floated down the river are loaded into ships. Away they go along the seacoast to North China. That is the way the corn farmers of North China get their wood. Their land is level. It is good for fields. They have no room to grow wood on their land.

There is a part of Australia, of Africa, and of South America that has the cool winter and warm, moist summer. Some cotton is grown in all three of these places, but only a little is grown in Australia and South Africa.

None of these lands is crowded with people as China is. Most of the cotton land in South America is in the country



Asia and Australia have areas of land suited to growing cotton and rice. Compare the location of the cotton- and rice-growing area in China with its corn- and wheat-growing section.

C. N. S. from Guillumette

Triangle

Chinese paddle a wheel in an irrigation ditch.

named Brazil. In Brazil, there are cotton farms much like those in the United States. Brazil grows enough cotton for her own people. She also grows some to sell. Most of the cotton she sells goes over the sea in ships to Europe.

1. Why is it hard to grow rice in a hilly country?
2. Why are Chinese shoes made of cotton?
3. Why are there few trees in North China?

What food crop are these Chinese people planting?

4. On a globe or a map point to the five continents, parts of which have the cool winter and warm, moist summer needed to grow cotton?
5. What country in South America sells cotton to Europe?
6. Explain why sweet potatoes can be grown in places where rice cannot be grown.

Some Things to Do

1. Add the words and phrases below to your notebook list of geographical terms. Write in your own words what you understand the terms to mean.

Corn Belt
Cotton Belt
rice paddies
step-fields

2. Study a picture of the step-fields in South China's hills. Make a model from clay or from heavy paper of a hill with step-fields on it.
3. Write a paragraph about growing cotton or about growing rice.
4. Make up five questions about South China. Be sure you know the answers. Your teacher may want you to exchange your list of questions with someone else in your class and answer his list of questions.

A Short Quiz

Copy the words and phrases in list (1). After each word write the word or phrase from list (2) that belongs with it. For example, after "cotton belt" write "South China" because the cotton belt is in South China.

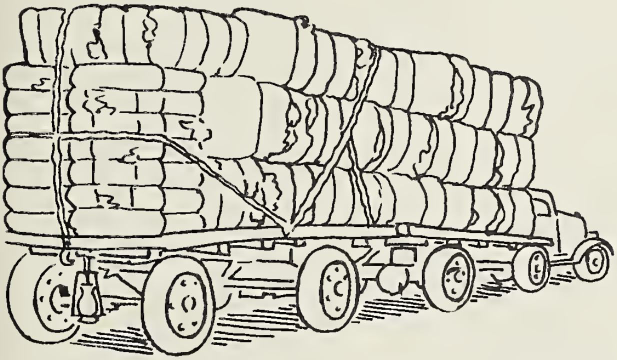
(1)	(2)
cotton belt	rice
step-fields	South China
paddies	North China
pine trees	hillsides
corn belt	"money crop"

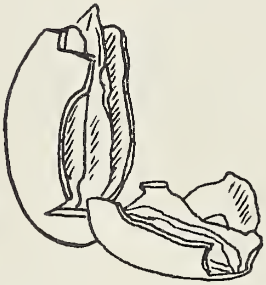
Stories You Will Enjoy

Story of Cotton by Dorothy Scarborough—Harper

Story Book of Clothes and Story Book of Rice by Mrs. Maud Petersham (Fuller) and Miska Petersham—Winston

One Day With Jambi in Sumatra by Armstrong Sperry—Winston





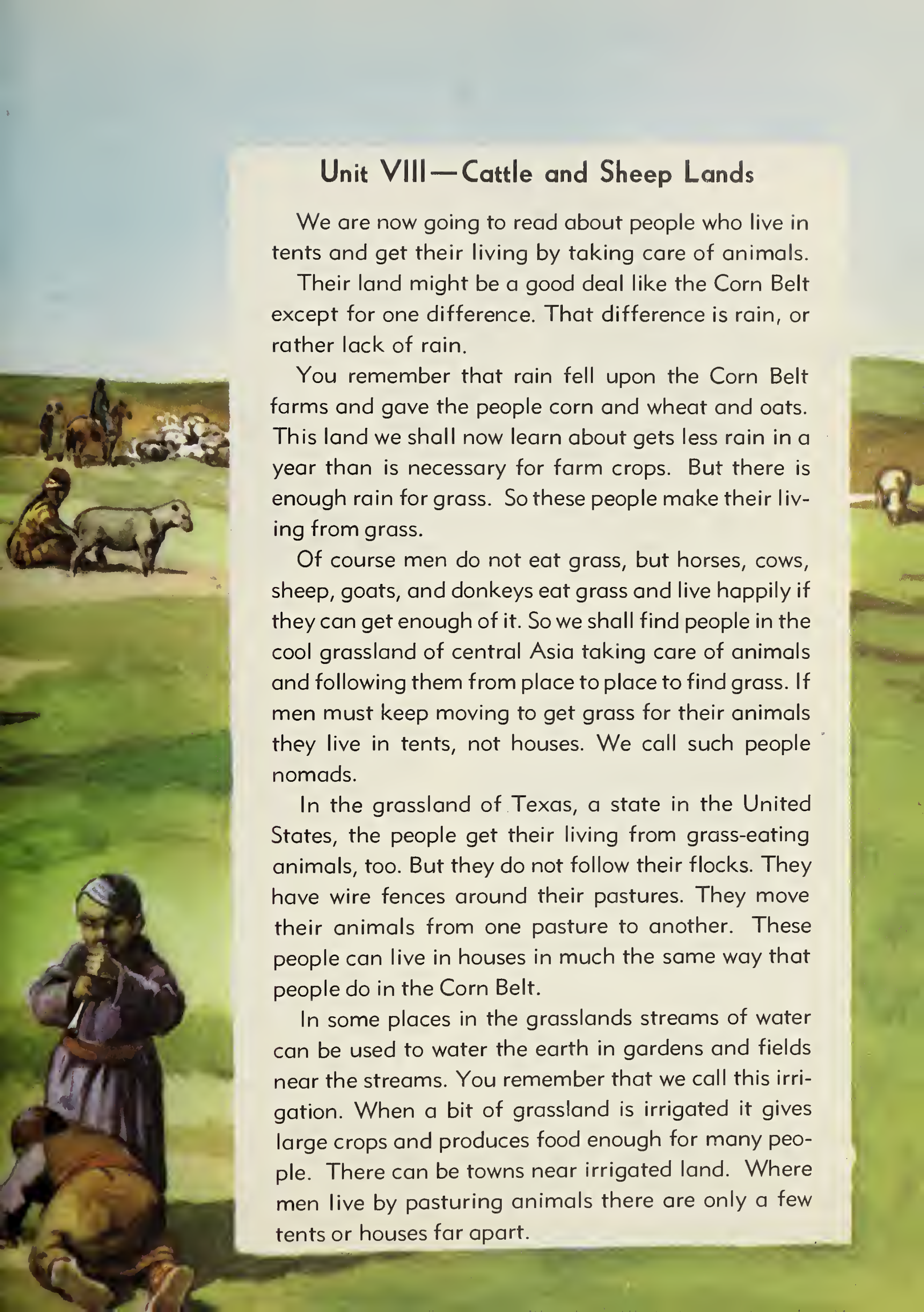
A Summary

1. Cotton is grown in North America, South America, Australia, Africa, and Asia. Make a list of 10 questions about cotton growing. Make another list of 10 questions about rice growing. Use the story and the pictures in Chapters 18 and 19, and the drawings on this page to help you.

2. Write the answers to your two lists of questions. Check them and change any answer you have incorrect.

3. Explain each of the following—
   a. The difference between summer weather in the fruit lands and in the lands of the cotton belt.
   b. Why cotton is less costly because of the use of the cotton gin.
   c. Why rotating crops is a better practice than planting the same crops.
   d. Why so many different crops can be grown in our Southland.
   e. The differences between our cottonfields and the cottonfields in China.
   f. Why there are parts of land in five continents that are suitable for growing the cotton plant.

4. Write two or three important geographic facts about each of the seven kinds of land you have studied in this book.



Unit VIII—Cattle and Sheep Lands

We are now going to read about people who live in tents and get their living by taking care of animals.

Their land might be a good deal like the Corn Belt except for one difference. That difference is rain, or rather lack of rain.

You remember that rain fell upon the Corn Belt farms and gave the people corn and wheat and oats. This land we shall now learn about gets less rain in a year than is necessary for farm crops. But there is enough rain for grass. So these people make their living from grass.

Of course men do not eat grass, but horses, cows, sheep, goats, and donkeys eat grass and live happily if they can get enough of it. So we shall find people in the cool grassland of central Asia taking care of animals and following them from place to place to find grass. If men must keep moving to get grass for their animals they live in tents, not houses. We call such people nomads.

In the grassland of Texas, a state in the United States, the people get their living from grass-eating animals, too. But they do not follow their flocks. They have wire fences around their pastures. They move their animals from one pasture to another. These people can live in houses in much the same way that people do in the Corn Belt.

In some places in the grasslands streams of water can be used to water the earth in gardens and fields near the streams. You remember that we call this irrigation. When a bit of grassland is irrigated it gives large crops and produces food enough for many people. There can be towns near irrigated land. Where men live by pasturing animals there are only a few tents or houses far apart.

Sovfoto

Chapter 20

Grasslands in Asia

Bringing the Sheep from Pasture

Chakan's people live on a great, level plain in Central Asia. Little rain falls on the plain so the grass does not grow tall. Chakan's people are shepherds. These people, called Kirghiz, move from place to place to get grass for the animals.

The plain where these shepherds live is in the Soviet Union, as it is often called. The Soviet Union is so big that it stretches across parts of two continents, Europe and Asia.

The part of the plain where Chakan lives is far to the east of the Caspian Sea and near the mountains of Central Asia.

"Chakan, go out and see if your brother is coming."

"Yes, Mother," replies Chakan. She steps outside the tent. She looks around in all directions. No house, no tree, no hill does Chakan see. She can see only five tents near the tent of her family. Nothing is to be seen in this flat land but the tent homes of six families.

Again Chakan looks around. This time she sees two men riding horses and driving a flock of sheep. The men are Khudair, Chakan's big brother, and Tundus, their friend. The children from the other tents run out to see the sheep.

Khudair and Tundus are bringing the sheep from pasture at the end of the day. As the two young men come near, each one rides in a different direction. Each calls loudly as he rides. Every sheep knows the voice of his own master and follows him.

Khudair fastens the sheep his family owns in a pen. Tundus leads his sheep to their own pen. The shepherds made pens for the sheep by driving stakes into the ground, and putting a net around the stakes. The net is made of strips of leather from animal skin.

Chakan's father, Olkum, comes to the camp riding a horse and leading another horse by a leather strap. Two goatskin bags filled with water are balanced across the back of the horse Olkum is leading. The water must last the six families until the next evening. To get water Olkum has been gone all afternoon. Tomorrow it will be another man's turn to bring water to the tents.

Perhaps you think it strange that these people carry water in goatskins. Why do they not use tin cans or buckets? One reason is that the water would be spilled as the horse moved. Another is that a tin can fastened on the back of a horse may rub the horse and make sore places. But a goatskin filled with water is as soft as one of our rubber hot water bottles. It cannot hurt the horse. These people keep some goats with their sheep. They can get a new goatskin bag without paying money for it.

Water for the animals to drink is not carried to them. Instead the animals are taken to the water. They have to drink water every third day. The next morning Olkum and Khudair get on their horses and lead all the sheep, goats, and cattle to the well. They start before daybreak. Three hours have passed before they reach the well.

At the well a leather bucket is fastened to a long rope made of leather. The men let the bucket down into the well. They pull the full bucket up by the rope. Then they pour the water from the bucket into a trough. The sheep and cattle stand beside the trough and drink, and drink, and drink. The men take turns pulling up bucket after bucket after bucket. Khudair wonders if the animals will ever get enough water. It takes six hours of work at the well to give them all the water they need.

You easily can see that the men of the family are forced to spend much time providing drinking water for family and flocks. Also they must find pasture and take the animals there to eat grass.

Olkum and Khudair spend many hours each day in doing these things. They also train the young horses, but they call that fun.

1. Locate on a globe or a map the Soviet Union. Across which two continents does the Soviet Union stretch?

2. Locate the part of the plain where Chakan lives.

3. Give two reasons why goatskin bags are used to carry water.

Kirghiz children have young animals for pets, just as do children all over the world.

Triangle

Chakan's Home on the Plain

The tent home of Chakan and Khudair is like the tents of other shepherds who live on the grassland plain. The Kirghiz call their tent a yurt. In winter they cover the yurt with thick cloth called felt. Felt helps to keep out the cold winds of winter. It is made of the hair of goats and the wool of sheep.

The roof and walls of the tent are stretched over a framework of poles. The poles are scarce because trees do not grow on the plain. These people sometimes make long journeys to a river bank or to a mountain to get poles for the yurt.

Besides cooking food for the family, the women make the felt for covering the yurts. They also spin the yarn, weave the cloth, and make clothes for the family. They make many blankets and covers, for the winter on the plains is very cold. They also make the animal skins into hides which they use in so many ways.

Chakan and her mother often sit on a sheepskin on the floor of the tent to spin. Each has a bundle of the soft sheep's wool in her lap. Mother takes a bit of wool and twists it around a little wooden stick about the size of a lead pencil. This stick is called a distaff. Mother twirls her distaff. This twists the wool into yarn. She winds two or three feet of yarn on the stick part of the distaff. Chakan does the same with her distaff.

"Be careful!" Mother says. "Pull the yarn gently, Chakan, or you will have lumps in it. You must learn to make your yarn smooth. Smooth yarn will make a nice piece of cloth like the piece Grandmother is weaving."

Grandmother sits on the other side of the tent with a little loom in front of her. She takes the yarn that Mother and Chakan are making and weaves it into cloth. Grandmother soon will teach Chakan how to weave. Grandfather sits nearby mending a saddle.

The women and children take care of the animals after the men have brought them back to camp. The women milk the sheep and mares and prepare the milk for food. Some of the milk they make into cheese.

To make cheese, Mother warms the milk in a kettle and curdles it, just as the Swiss cheese maker does. She takes the soft cheese out of the kettle and forms it into cakes with her hands. She lays some of the cheese cakes in a wooden bowl for the evening meal. The rest she lays out on the grass to dry. Dried cheese is good for winter food.

The chief foods of the Kirghiz are milk, cheese, and butter, with a little meat now and then. Everyone drinks a lot of milk, but it is sour milk. These people would not think of drinking sweet milk. They think that sweet milk would make them feel sick. They often live for weeks at a time on nothing but sour milk and things made from milk. One traveler says that each person among the Kirghiz eats about four pounds of this food each day.

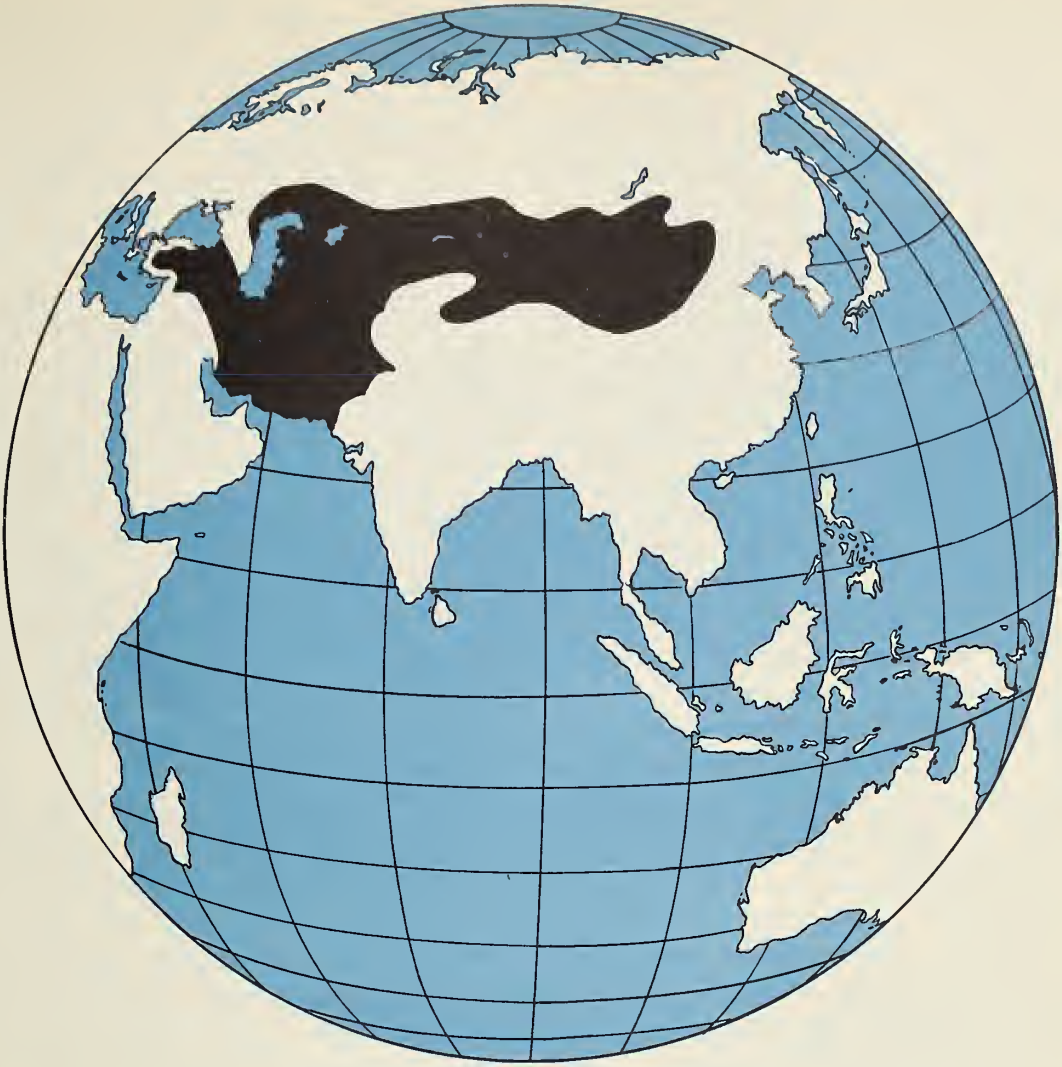
When the evening meal has been eaten, the family sit on the floor of the tent. They talk about the happenings of the day.

"I saw a wolf today," says Khudair. "He was coming toward the sheep. He wanted to get a lamb for his dinner."

"Oh," cries Chakan, "I don't want a wolf to get my spotted lamb!"

"Don't worry, Chakan," says Khudair. "I drove him away. I'll get that old wolf one of these days."

"I saw Gengis Bey at the well." It was Olkum who spoke. "His people are



Grasslands extend almost across the continent of Asia. In Central Asia summers are hot with little rain and winters are cold with snow and much wind. Here nomads wander with their flocks.

Triangle

camped near there. We may see them soon. They have a fine flock of sheep and goats this year."

As they sit on the floor of the tent, there is a great deal of talk about wells and water, about grass and horses. Grandfather tells about a horse race he saw when he was a young man. Grandfather has spent much of his life on the back of a horse. He could do trick riding when he was young. He would jump from a horse's back while the horse was running, and jump on again while the horse was still running very fast.

Khudair and his young brother tell about riding with the other boys in the camp. All the boys and girls ride horses.

"The cattle and horses have eaten the tops off the grass," says Olkum. "The sheep and goats have bitten it close to the ground. There is no more good grass anywhere near our camp. The animals must have grass. We must move so that we may find some."

Khudair plays on a lute, an instrument with two strings. The family sings a song while Khudair plays. Then all lie down to sleep. They sleep on sheepskins on the floor of the tent. They lie in a circle with their feet toward the center.

Khudair often stays out until midnight, watching the flock. Then Olkum leaves the tent and goes out to take his turn at watching. Someone must stay on watch in a Kirghiz camp every minute of the night and day to keep wolves away. A wolf likes best to eat a nice, fat lamb. But a young goat will do almost as well if the wolf can catch one.

Olkum and two of the other men ride away on horses. Each goes in a different direction. When they return at night, each tells what he has found. After a great deal of talk, they decide where to go for their next camping place.

1. Find a word in the story that means—
   a. A Kirghiz tent
   b. Thick cloth made from goats' hair and sheep's wool
   c. Small stick used in making yarn
   d. Frame used in weaving cloth
   e. Musical instrument with two strings

The Shepherds Move

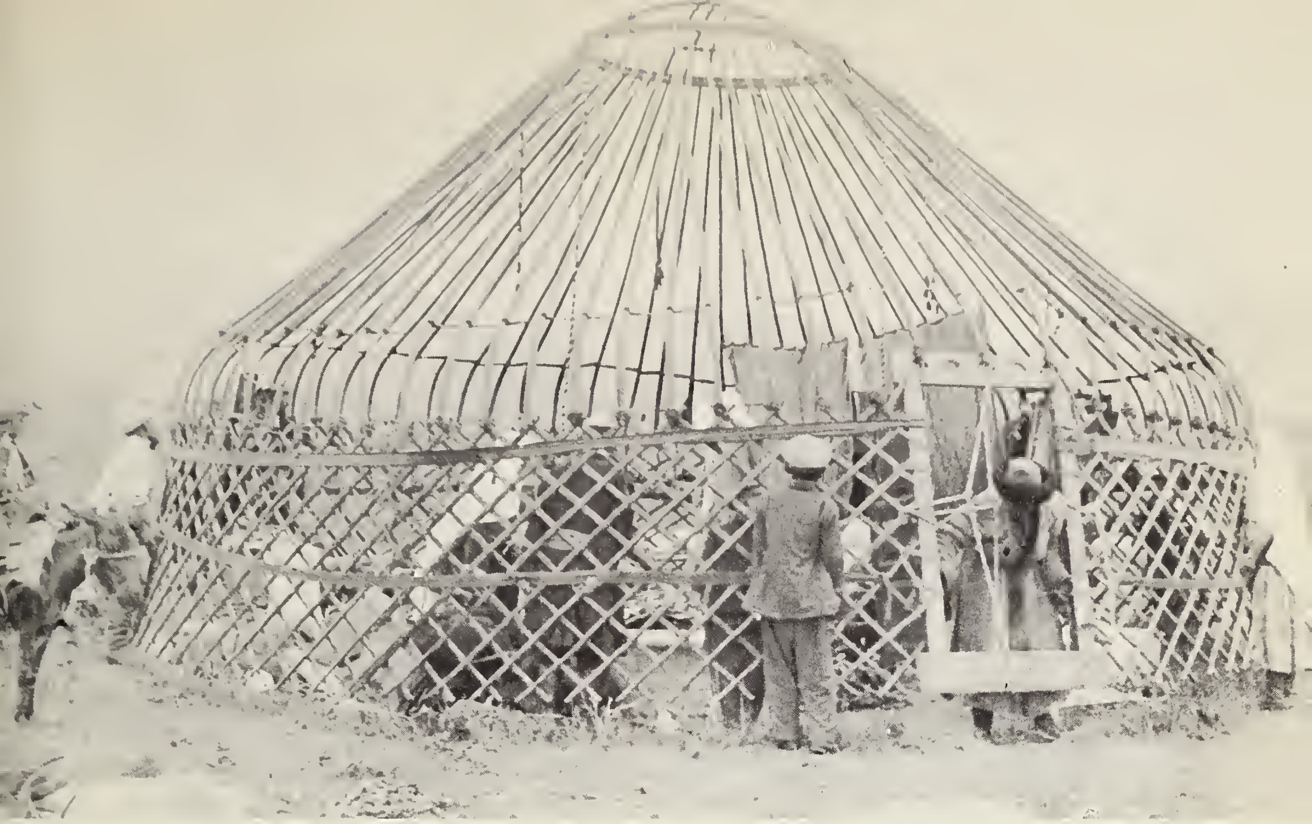
The next day the people of this Kirghiz camp move. Everyone is up very early. Each person knows exactly what he or she has to do to get ready. The women do most of the work. They take down the tents. They tie the felt roof and the poles together. Grandmother makes her loom, her yarn, and her clothes into a bundle. All the bundles are tied with strong rope made of leather. It takes only a few moments to pack everything these people own and to tie the bundles on the animals.

The six families are now ready to move. Because Grandmother is the oldest woman she rides on the ox that goes first. The girls have put their best saddles on the backs of their horses. Every girl is dressed in her gayest clothes.

The men drive the sheep and goats and cattle. When they have gone about fifteen miles they stop for an hour of rest and for some food. They let the animals eat grass. The Kirghiz must often keep moving for twenty-four hours before they come to a place where there is enough grass for their animals.

When they find a place they like, they stay there until the grass has been eaten. Then they must move again. Moving and camping, moving and camping—that is the life of the shepherds. They have lived this kind of life month after month, year after year.

People who move about in this way are called nomads. The Kirghiz are flock-following nomads.



Triangle

The Kirghiz clean house by moving their yurt. They take the felt covering off the framework and move the boxes and bedding outside. Then everyone helps carry the framework to a new spot. When they have moved the household furnishings back inside and put the felt covering on again, the moving is finished. Are these tents different in shape from the ones used by the Arabians and the Indians?

In the early summer, as they look for pasture, some Kirghiz move northward each time they move. As autumn comes on, they turn back and move southward with every change of camp. In very dry seasons, nomads that have spent the winter along the river Syr Darya have traveled more than 600 or even 800 miles to the north. All the way along they are looking for grass. They go as far as the northern edge of the grassland. They even go to the place where the Great Northern Forest begins.

There are many mountains in Central Asia. On the sides of these mountains are wide stretches of grassland. Some of the Kirghiz who live near the mountains far to the east of the Caspian Sea do as the Swiss people do. In summer they pasture their flocks on the mountains.

In summer the plain gets very hot. It is much cooler on the mountains. The grass on the plain may be short and dry. At the very same time the grass on the mountain is tall and green. This mountain grass is the best kind of pasture.

Chakan and her family and the other five families of Kirghiz are going to their summer camp on the mountain. The pack animals, loaded with yurts and little trunks, and cooking things, climb the steep paths. The people who have horses ride them. Those who have no horses ride oxen. Everybody rides who possibly can—mothers, fathers, boys, girls, and yes, even babies. Babies ride in little wooden cradles strapped to the backs of horses or oxen.

In the mountain pastures are flowers and trees. The trees provide all the wood needed for cooking and for heating the yurt on cool evenings.

There is so much grass on the mountain pasture that the camps can be close together. It is easy to go from one camp to visit people in the next camp. This is the merriest time of the year. The shepherds sit in the yurts in the evening. They visit and tell stories and drink bowls of koumiss, their favorite drink. It is made of mare's milk. A Kirghiz woman is very sorry if she cannot offer a bowl of koumiss when a guest arrives.

To have a feast the Kirghiz eat a sheep. The women cook the whole animal and put it on a big wooden platter. The platter is set on the floor of the tent. The family and the guests sit in a circle around the platter. Everyone reaches in with his fingers and helps himself. These people do not use forks as we do.

When every bit of meat is eaten they crack the bones to get out the marrow. Marrow tastes as good to them as ice cream or chocolate tastes to you.

In winter the mountain pasture is covered with deep snow. The sheep and cattle and horses would starve there. But before winter comes the nomads go back to the plain at the foot of the mountain.

A Central Asian plain in winter is a cold, cold part of the world. There is snow and much wind. When a strong wind blows, the snow stings the face. Winter winds creep into the tent. There is not enough fuel to make a large fire to warm all of the tent. If Chakan and her mother can get enough fire to melt snow for drinking water and to make a cup of hot tea, they think that is good. If they can cook some meat now and then they think they are very well off.

To keep from freezing in winter, the people wear clothes that are very, very thick. Everybody has a warm cap. The

There are no stores where Kirghiz women buy cloth so they must weave their own. Does this tell you one reason why these people keep such large flocks of sheep? What are other uses for the sheep?

Triangle

men wear boots lined with sheepskin. Their coats are made of sheepskin also, and have the wool on the inside. The sleeves of the coat hang just about 12 inches below the wearer's hands. The sleeves are pulled up while a person is at work. When he is not at work the sleeves fall over his hands and keep them warm.

What do the animals live on in winter? They eat dried grass. It is a good thing that the snow here does not get very deep. The animals can dig through the snow with their feet and get the grass. The herdsmen are careful to see that there are some places to which the animals do not go in summer. The grass on these places is left for winter food.

We say that the Kirghiz are a tribe. A tribe is a number of people who live under the same leaders. If you were asked if you belong to a tribe you might say, "No. I am a Californian or a Virginian," because you live in California or Virginia. Or you might say, "I am an American," because you live in the United States.

If you were asked where you live, you might say that you live in such-and-such a village, town, or city. If we ask a nomad where he lives, what could he say? He would have to say, "I camped last year in twenty places. Today I am here. Next week I will camp at such-and-such a place." You see a nomad's home is wherever his tent happens to be.

A traveler on the plain of Asia may pitch his tent beside a well. No one else is anywhere in sight on the wide, level land. But in the morning he may find hundreds of sheep and cattle around his tent. A camp of Kirghiz has moved in while the traveler slept. Eight or ten yurts may have been set up near his own tent. Or perhaps the traveler may go to bed in such a camp and wake in the morning to find himself quite alone. The

Some Kirghiz have settled on farms in sections where there is more rain. More rain means more pasture so that they do not have to move from spot to spot.

Sovfoto

Sovfoto

Irrigation is changing the Kirghiz way of living. When there is water, there is more food and men can settle in large groups and build factories, such as this silk-spinning mill.

nomads have moved away while he slept.

The traveler may ask where those Kirghiz have gone. He is told they are camping by a certain well or by a certain stream. Now we understand why the Kirghiz do not say, "I am from such-and-such a place." Instead they say, "I am of such-and-such a tribe." Nomads always speak of themselves as belonging to a certain tribe.

1. Explain this statement—"The life of the shepherds is moving and camping."
2. In which direction do the nomads take their flocks in summer?
3. What animals have you read about that dig through the snow to get grass?

New Things Come to the Nomads

We have been reading about a few camps of nomads or tent people, called Kirghiz. We know that these people follow their flocks back and forth over a small part of the great grassland plains of Central Asia.

The Kirghiz are not the only nomad people who follow their flocks on this very large grassland. There are several other peoples who live there in the same way that the Kirghiz live.

Like the Kirghiz, the other nomads have sat by campfires while the grown-ups told stories to the children. The children have helped the grown-ups with the work. That was their school. Not one person in five hundred could read.

But something new is coming to the tents of some of the nomads of Central Asia. Most of their country is a part of the Soviet Union. The government of the Soviet Union is trying to have everyone in their land learn to read and to write.

In the summer, teachers in automobiles go to the nomads' camps. These traveling teachers show the children how to read. These teachers also show moving pictures. That is one of the best ways of teaching children and also grown-ups. The automobile brings books to the children in the tents.

These people may learn to read and write, but most of them must still follow flocks. Most of their land will grow nothing but grass. Some of the Kirghiz are now changing their ways of living. Some are doing new things.

A few years ago a railroad was built into their country. A railroad makes changes in the lives of men.

The men who plan a railroad are called engineers. Some engineers planned this railroad. Other engineers planned a dam across a river that flows through the land of the Kirghiz. This river comes down from the mountains and flows into the Syr Darya. Still other engineers made the plan for a long canal and marked out the place for it. Some of the Kirghiz worked on the railroad. Some worked on the dam. Others worked on the canal.

When the dam was built across the river the water was held behind the dam. The water filled the dam and ran into the canal. When the canal was filled with water, the water ran out onto the plain. Then some of the Kirghiz were able to plant wheat and barley and rice there. They also planted beets to make sugar.

You remember that when farmers water their land in this way we say they are irrigating it. The Kirghiz now irrigate many farms in the level land near their river. Some of the farmers use tractors and other farm machines very much as Mr. Jenkins does in the Corn Belt.

When land is irrigated farmers can grow a lot of food on a small piece of ground. A family of nomads on the plain needs as much land as you could walk across in two hours or perhaps in half a day. In two minutes you could walk across all the land that is needed to feed the family that lives near a river and irrigates its land.

Where people irrigate the land there can be food for many people and there can be towns. Towns have grown up along the railroad and along the rivers in

Most Kirghiz go to schools that are different from our schools. Here a teacher talks about the Kirghiz constitution to a group of villagers. Teachers visit the camps to bring books and moving pictures.

Sovfoto

this land. In these towns many people live in brick houses. The people who irrigate land do not have to move from place to place.

Someone wanted a factory in one of these towns. Some engineers went back into the mountains at the eastern end of the land of the Kirghiz. They found a waterfall and built a dam. Then they put in water wheels and made electricity as the Swiss people have done. The Kirghiz are using the electricity to run the machines in factories. Machines spin wool and cotton into yarn. Other machines weave the yarn into cloth. How different this is from the way Chakan and her family make cloth!

Years ago the Kirghiz language was not written down. The people just talked to one another and remembered things that had happened, as the Eskimos do. Then some people began to spell out the Kirghiz language and write it down. They started schools in the towns. Now many Kirghiz can read and write. They have a number of newspapers and they print books. They also have movies.

When they move to town and work in factories the Kirghiz soon learn to say, "I live in such-and-such a town," instead of just telling the name of their tribe.

This story shows us how very useful a river can be in a dry country. Without the irrigation made possible by putting a dam across the river these changes would not have come.

We have read about one river that comes down from this mountain and flows through the land of the Kirghiz. There are high mountains for a long, long distance in Central Asia. We find other rivers flowing out of the mountains and across the grassland. We find irrigated land and towns along all of these rivers near the foot of the high mountains. In these places many people are living on little land. But only a small part of the land can be irrigated. Most of the land can be used only by the tent people.

Sometimes the camping nomads see airplanes flying overhead. Some of these people hope to get more and more machines and to keep on changing their ways of doing things. But most of them still think that a tent is the best kind of home.

The chief of a tribe was once riding past a cabin that one of his tribesmen was building. "It is a sick nomad who thinks a cabin is a home!" said the chief.

1. What change has been made in the way the Kirghiz use the land near the Syr Darya?

2. From where does the power come to run machines in the factories near the mountains?

Some Things to Do

1. Add these names to your list of geographical terms. Learn to write the names of these places and things.

Soviet Union
Caspian Sea
nomads
plains
tribe

2. Draw a picture of one of the following—
   a. Drawing water at the well
   b. Grandmother spinning yarn on a distaff
   c. A group of yurts
   d. Sheep pen near a yurt
   e. Family sleeping in winter

3. Write two paragraphs telling about the food and clothing of the nomads.

4. If you were a nomad tell why you would choose to follow flocks on the plains or choose to be near the mountains.

5. In this story you have read about two ways of living on the grassland of the Soviet Union—the old way and the new way. Below is a list of words that describe both ways of living. Arrange your paper in two columns, head the one column, "Old," and the other

column, "New." Write the words in the list in the correct column.

List of Words

brick houses
books
yurts
electricity
farms
tribes
irrigation
looms
movies
newspapers
distaff
koumiss
factories
railroads
goatskin bags
towns

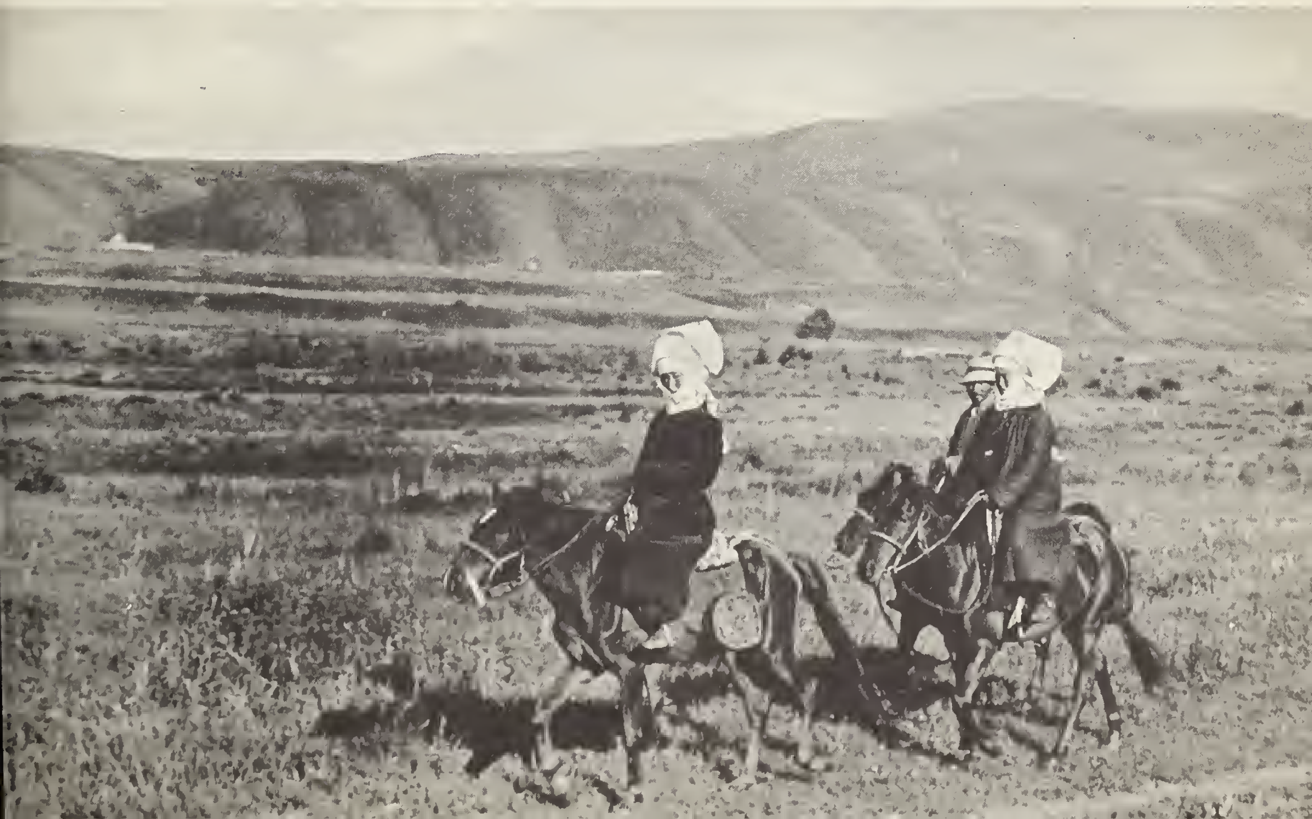
A Short Quiz

Each sentence below has several endings. Copy the sentence and complete it by choosing the best ending.

1. Animals are taken to the well for water because
   a. the walk gives them exercise and is good for them.
   b. the shepherds can bring only enough water for their families.
   c. animals drink only fresh water.
2. Some shepherds take their flocks in the summertime to pastures on the mountainsides because
   a. they live in Central Asia where there are many mountains.
   b. it is cooler on the mountains than on the plains.
   c. mountain grass is good for animals.
3. Towns grow up near land that is irrigated because
   a. people like to live in brick houses.
   b. canals provide electricity to run machines in factories.
   c. there can be food for many people.
4. Most of the land in Central Asia can be used only by nomads because
   a. only a small part of the land can be irrigated.
   b. rivers from the mountains flow away from the grassland.
   c. towns are too far apart
5. Most of the people in the cool grasslands get their living by following flocks because
   a. there is not enough rain for farm crops to grow.
   b. they like to move from one camp to another.
   c. the land is so very different from the Corn Belt.

Kirghiz women ride out to visit a neighbor. Kirghiz make headdresses of yards and yards of cloth. They can pull the loose cloth at the bottom across their faces for protection when the wind blows.

Triangle



Charles J. Belden

Chapter 21

Ranch Communities

We Visit Some Texas Cowboys

In the United States we have some grassland very much like that over which the Kirghiz nomads follow their flocks in Asia.

Some of this grassland is in our State of Texas. Texas is the largest state in our country.

Scott McDougal is the son of a cowboy. His father works on a ranch in Texas. The ranch belongs to two brothers whose name is Moss. If you went to this ranch in February or March, you would find more than two thousand cattle. You would also find thousands of sheep and goats and thirty horses. We might say that this is a cattle ranch, or a sheep ranch, or a goat ranch, but we shall just call it the "Moss Ranch."

Both the Kirghiz and the Moss ranch people get a living from animals. Do the Moss brothers and the McDougals live in tents? Do they move from place to place, as the Kirghiz do? No, these Texas people live in a house, the same house throughout the year. Nine years ago Scott McDougal was born in this house, and here he has always lived. Do you think that Scott belongs to a tribe? No, Scott says he is a Texan.

The Moss brothers, the McDougals, and the other people on the Moss ranch live in houses with electric lights and telephones. This is very different from the way the nomads live. Why is there this difference? A fence around the Moss ranch makes the difference. The fence keeps the animals on the ranch. They eat the grass that grows on the ranch. The Moss ranch people do not have to follow their animals while they hunt grass. They can live in houses, not tents.

The ranch is divided by fences into a number of pastures. Some pastures are used for winter grazing. Others are used for summer grazing. If there are rains, some grass grows even in the winter season. Snow falls sometimes, but it melts very soon. Snow does not keep the cattle, the sheep, and the goats from getting enough to eat if there has been enough rain to make the grass grow.

The Moss ranch is 8 miles in length and 5 miles in width in some places. There are many drinking places for the animals. The people do not have to move with the flocks from one well or water hole to another and another and another, as the nomads do.

The Moss brothers have built dams to keep water where it is wanted. Before a dam was built, water would rush through the little valleys whenever there was a heavy rain. The water would rush and roar for an hour or two after a thunderstorm. But the next day there would be only a trickle of water, then in a few days no water at all. After a dam has been built, the water does not run away, it stays behind the bank, or dam. After the next rain, more water will be held back by the bank. At last there is a fine pond full of water. These ponds of water are drinking places for the animals. They are called tanks in Texas.

The Moss ranch has more than twenty tanks. Some of them are larger than the Chinese farm we read about. Some are as large as twenty baseball fields or a dozen football fields. They have used tractors and plows and scoops to help in making dams. There are also a few springs on the ranch, and there are a few wells. The wells have windmills that pump the water up into small tanks for the animals to drink.

By taking care of water in this way, the people on the ranch have enough water for themselves and the animals. But there is not enough rain to make good crops of corn such as Mr. Jenkins grows. There is not enough water to irrigate a plot larger than a garden. A gasoline engine pumps water out of a well to the Moss garden. There is also a garden near every cowboy's house, and a well to give water to the garden. The people have good gardens.

The Moss brothers do not grow corn or any other winter feed for their animals. But they hope there will be enough rain to make grass for winter pasture. If

Texas ranches have many tanks to store water for their cattle. Why do you think water tanks are more important to Texas ranch owners than they would be to Kirghiz nomads?

Soil Conservation Service

there is not enough grass, then they must buy feed. When no rain falls for a long time we say there is a drought. Then the grass does not grow any more. Something has to be done, and done quickly. First the cowboys go after the cactus. Cactus is a plant that grows in some parts of the Moss ranch. Its leaves are as thick as your finger and as large as your hand. The leaves are filled with juice, like fruit, and they are covered with sharp thorns. The thorns stick out in all directions like pins. Cattle cannot eat this cactus because of the thorns.

When drought comes, the men go through the pastures with blowtorches. A blowtorch is like a lamp which has a very hot flame. This flame is a foot long and it burns the thorns off the cactus. Then the animals can eat the juicy cactus. It gives them both food and drink.

When the cactus is gone, the Moss brothers buy carloads of hay and cottonseed cake. They pay for trucks to haul this feed to the ranch. The hay and cake are spread out on the dry ground. The cattle, the sheep, and the goats eat. They do not starve, but it takes a lot of money to keep them alive.

Scott McDougal's father tells us that one year there was a very bad drought. It did not rain for months and months. The Mosses bought feed, and bought feed, and bought feed, until they could buy no more. Then they sent some of their cattle away by train to another state where there was no drought. They had to pay the railroad for carrying the cattle. They had to pay for the use of the pastures in the other state.

The Moss brothers had to sell the rest of their cattle. The cattle were not ready to be sold, but they had to go because there was no feed for them. The cattle brought a very low price because they were so thin.

"Yes," says Mr. McDougal, "the ranch lost a lot of money that year. There was no grass left on the ranch, but, thank fortune, there was enough water in the tanks! Some of our tanks are as deep as a two-story house is high. The tanks will hold enough water for several years, even if it doesn't rain much during that time."

There are other grassland places in the world where the poor animals die for want of water during a drought. We are very glad that the ranch people of Texas have found a way to keep their cattle alive.

1. People who live in the state of Texas say they are Texans. In what state do you live? What do people in your state call themselves?

2. What are the chief differences in the ways ranchers and nomads live?

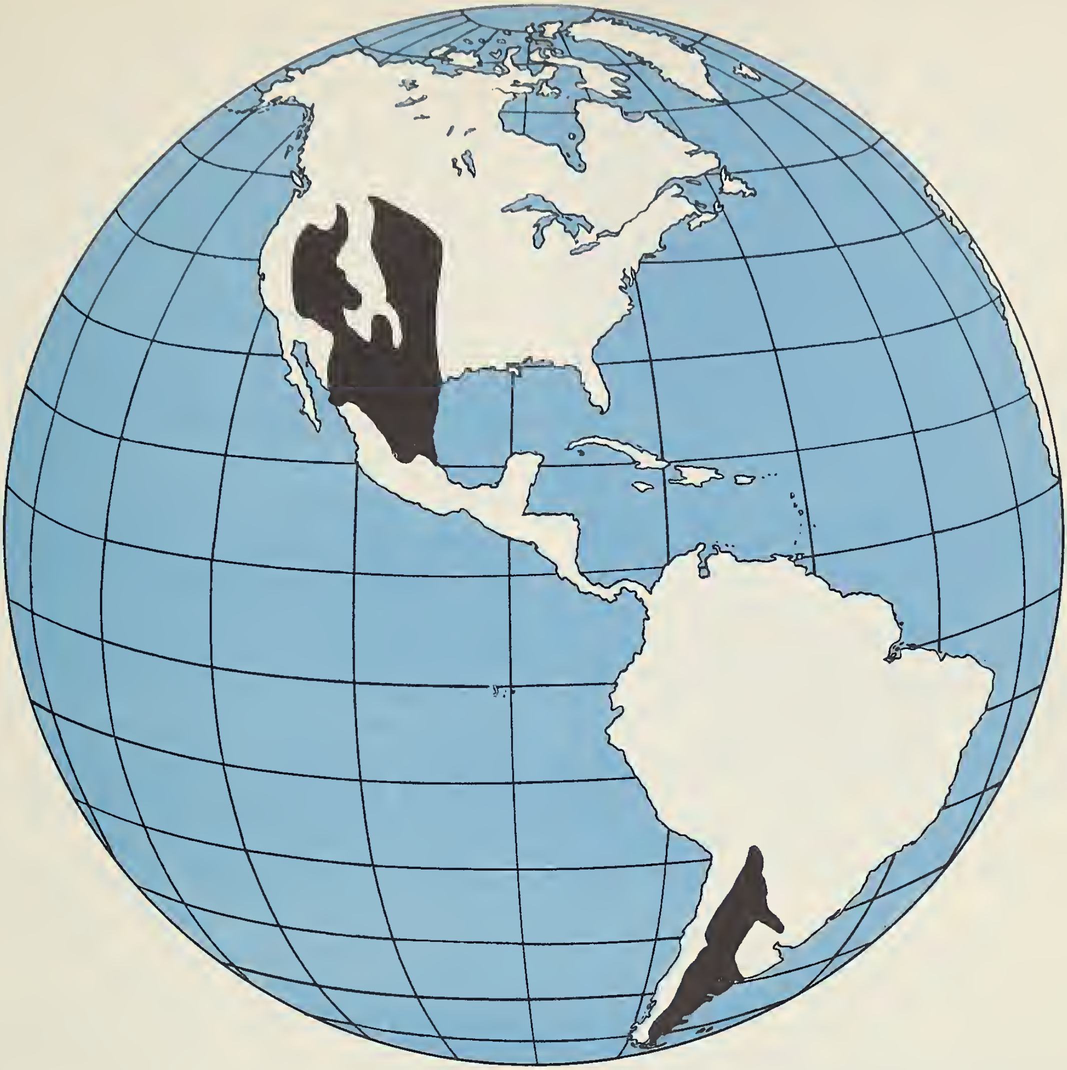
A Trip Around the Ranch

The Moss ranch is about a hundred times as large as the Jenkins farm. It has about twenty thousand acres of land. But no more than 25 persons live on the ranch. It is almost 3 miles to the home of the nearest neighbor, and 4 miles to the rural school.

The nearest town is about 18 miles from the ranch. In this town are the high school and the nearest railway station, the nearest post office, the nearest grocery store and drug store, and the nearest movie house.

There are several automobiles on the ranch so the people can go to town quite often.

Mail comes from town at least three times a week, and many newspapers and magazines come to the ranch. Scott may listen to some of the radio programs that you hear. Electric current for the lights



There is more land suited to raising cattle in North America than in South America. What climate facts do you know about grazing lands?

Texas Extension Service

Arkansas Publicity Dept.

At one time ranchers produced mainly beef cattle. Now some ranchers have herds of dairy cattle.

and pumps comes from a water power plant on the Colorado River, many miles away.

They have many riding horses and four small trucks. The trucks are very useful on the ranch. There are more than 300 miles of automobile roads winding around through the thousands of acres of the Moss ranch. Every year miles of new fence must be built to replace old fence. The outside fence is about 30 miles long. The trucks carry fencing wire, fence posts, firewood, and many other things. They carry salt to all the far pastures. The animals all like to lick salt and are not healthy if they do not get it. The ranch uses tons of salt.

Suppose we walk around the ranch.

We do not want to walk more than 10 miles a day, so, it will take us three days to walk around the Moss ranch. Even then we shall be very, very tired when we get back to Scott McDougal's house. In that three-day walk we shall see no house except the houses on the Moss ranch. We shall not see even one other house where people live. Neighbors here are far away.

Hour after hour, as we follow along the outside fence, we see a line of fence posts going straight away from us. The fence goes on and on until we can see no farther. Let us start this morning and see how far we can walk.

First we see some long-haired goats nibbling the leaves from some bushes. Then we see a hundred sheep walking slowly along. They are eating the grass as they walk, a bite here and a bite there. In the middle of the day the sheep will be lying down. The sheep eat in the morning and again in the late afternoon.

In another pasture we see hundreds of cows. They have red bodies and white faces. Their calves are near them.

We see rabbits now and then, and once a deer jumps up from behind a big rock and runs away. There are many deer on the Moss ranch, but of course they do not come near us. If we are quiet enough as we walk, and if we look sharply, we may see a wolf, but the chance for this is not good. The wolf is almost sure to see us first and hide. The wolf is a very sly, watchful fellow. He has to watch to get his food. He thinks that a rabbit makes a fairly good breakfast, but he really prefers lamb chops. He likes his chops raw, fresh, and with the warmth of the live animal. The wolf also has to watch out for enemies, for he has few friends. Every man kills every wolf that he can. The wolf that isn't watchful soon gets killed.

On the south side of the ranch we walk for an hour or two beside a stream. Large trees grow in the moist soil near the water. Many of the trees are pecan trees. Pecan trees grow wild along many streams in Texas. A hundred of these pecan trees on the Moss ranch are an especially fine variety. They give large, thin-shelled nuts. There are thousands of pounds of these good nuts to be picked up in the autumn. In good years several truckloads of pecans go to market.

The pecans make us remember that it is time for lunch! We have been walking all morning without seeing more than the beginning of the Moss ranch. Three days to walk around the ranch! Thirty miles of fence! What a big place this ranch is! But there are even more than 30 miles of wire fence. There are many cross fences between pastures. All together there are more than 100 miles of fence on this ranch.

Every two weeks a man on horseback rides along every mile of this fence. He looks at every post and repairs any breaks in the wires. They call this, "riding the fence." The man who rides the fence carries wire and staples, a wire cutter, and a hammer to fasten the wire to posts. He has one more thing to carry. He must take a rifle because he might see a wolf or a rattlesnake.

1. What happened on the Moss ranch the year of the drought?

2. The Moss ranch in Texas has about twenty thousand acres of land. Why do you think so much land is needed for twenty-five persons to make a living?

3. What did the people see as they walked around the ranch?

The Year's Work on the Ranch

We ask Mr. McDougal how many cows there are on the Moss ranch. He tells us it is not an easy matter to count the cows. Cows like to go about in threes and fours or in larger groups. They scatter themselves over thousands of acres on the ranch.

Cowboys count the cattle. It is very difficult to count cattle in such large herds. Probably no one knows the exact number of cattle in Texas, but there are more than in any other state.

U. S. Forest Service

In late winter and early spring there is what is called the round-up. The cowboys get on their horses and ride everywhere through the ranch to find every cow. Some of the cows are almost wild. Not one of them has been in a barn. Most of them have never been touched by a man since they were quite young. The cowboys caught them once when they were calves and that scared them almost out of their wits.

Mr. McDougal goes on to say that after days and days of careful looking, all the cows and calves are brought together at last. They are driven into some small pens near the ranch house. The cowboys catch a calf with a rope so that they may mark it. We call this branding. To brand or mark a calf, a hot iron is pressed for a second or two against the calf's skin. When the burn heals it leaves a scar. This scar shows the brand of the ranch. This is the brand of the Moss ranch— $\frac{\circ\circ}{\circ\circ}$. Each ranch has its own brand or mark.

Suppose an animal that has the Moss brand gets out and strays away. A stranger may find her. Is "finding keeping"? To whom does the cow belong? The brand will show the finder that the cow belongs to the Moss ranch.

The Moss ranchers like to have the cattle round-up finished early in March. The weather is getting warm by March and the sheep are panting because their thick woolen coats make them so hot. You can imagine how you would feel if you had to wear your winter coat in warm weather. It is time to cut off the sheep's wool, or shear them, as we say.

The cowboys round up the sheep and keep them near the shearing shed for a few days. In the shearing shed we hear a sound like "pep-pep-pep"—. It is the sound of the gasoline engine that works the clippers. The sheep shearer holds the clippers and moves them over the body of the sheep. The clippers give the sheep a haircut all over.

The sheep shearer lays the sheep's fleece, or woolly coat, out on the floor. Someone ties the fleece in a small roll and puts it into a big sack with a hundred other fleeces. A fleece weighs about nine pounds. Each of the Moss brothers' six thousand sheep has given up its fleece. You may imagine how many truckloads of wool are taken to the railway station!

In May the sheep are put into the trucks and away they go to the freight train. The freight train carries them to market in the city. Every sheep on the Moss ranch is sent to market. The ranch does not have one sheep on it all summer long, but every fall thousands more sheep are bought. They spend the winter eating grass. In the spring they leave their fleeces at the ranch and then go to market as the others did.

As soon as the sheep have been sheared, it is the goats' turn to visit the shearing shed. Their long hair, called mohair, is used to make a kind of cloth for covering the seats of railway trains and in many other ways. Five thousand fleeces of mohair are taken to the freight train. Then the goats go back to nibbling bushes in the pasture.

With the money that the Moss brothers get for all these fleeces they can buy some of the things they need from the stores in town.

Sometimes, after the sheep and goats have lost their warm coats, there comes a "norther." A norther is a sudden storm of very cold, hard wind. The wind comes from the north. The Moss ranch has a number of low sheds to shelter the sheep and goats when a storm comes.

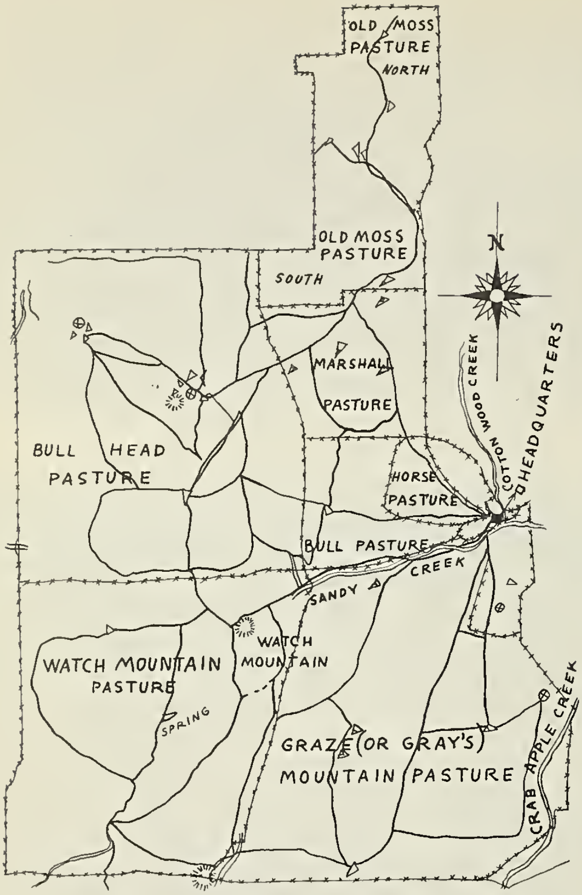
Arkansas Publicity Dept.

The great industry of the ranch lands—raising cattle, sheep, and goats—requires skilled workers. Keeping the feed racks and troughs filled is a steady job. Cowboys rope young calves and brand them. Other workers put the goats through a dip and sheer the sheep of their winter coats.

Texas Extension Service

Texas Extension Service

U. S. Dept. of Agriculture



A map or diagram of the Moss Ranch.

Sometimes the norther comes quickly. Many sheep and goats may die of cold before they can get to the sheds.

During the year a thousand goats will be sold by the Moss ranch. A hundred or even two hundred cows will go to the sausage factory. The Moss brothers plan to keep enough calves to take the places of the cows that have been sold. They try to have at least fifteen hundred cows on the ranch all the time.

In the autumn the trucks are loaded with a thousand of last year's calves. We call them yearlings now because they are a year old. The yearlings go to the station, into the freight cars, and away. It is from such ranches as this that Mr. Jenkins buys the young cattle that he fattens on his farm in the Corn Belt.

Summer is a very busy time on the Moss ranch. The cowboys ride around in the pastures among the cattle, looking, looking as sharply as eyes possibly can look. The cowboys are looking for a very troublesome fly that is sometimes found in the cattle country. If a cow gets even a tiny scratch this troublesome fly lays its eggs in the wound. The eggs hatch and there are little worms. These worms, called screwworms, may cause the cow to die. The cowboys take the cow to the ranch house. They put medicine on the sore to kill the worms. Then the cow is placed in a small pasture near the house. There the men can watch her until the sore is well again.

Scott McDougal rides horseback as well as most men. He often rides with the men who are on the lookout for screwworms. He can do this work as well as any of the cowboys on the ranch.

In winter Scott rides the 4 miles on horseback to the rural school. Scott's school may be very much like the school to which the Jenkins children go. Most of the children on the ranch ride horses to school. This gives them much practice in riding.

On Saturdays in winter, Scott rides in the round-up. He knows how to use a rifle. He hunts rabbits and other small animals. Scott is a fisherman, too. He has a small boat on a large tank not far from the ranch house. The Moss ranch is in dry country but there are plenty of fish in the tanks. There are several acres of tank for every person. If they want fish, all they have to do is catch them.

Autumn is the season for hunting deer, birds, and other game in this part of Texas. Friends of the Moss brothers often visit the ranch in autumn. These hunters do not make trouble, but sometimes hunters come who are not invited.

They want to steal game. They may come to a part of the ranch far away from the ranch house and the houses where the cowboys live. These hunters hope that no one will see them. Perhaps they come at daylight and cut the fence so that they can get their cars inside the ranch. Sometimes they come at night and hunt by the light of the lamps on their cars.

During the hunting season the cowboys have to keep riding fence all the time and repairing the places the hunters cut. Sometimes they have to ride outside the ranch to find the sheep and cattle which have strayed away through breaks in the fence. Hunting makes a great deal of work for the cowboys.

Hunting for sport comes in the autumn, but there will be a wolf hunt whenever some wolves move into the ranch. Wolves like to live on the Moss ranch. They find good food here.

Ten hounds live on the ranch. We might call these big dogs the "wolf police." Wolves may come at any time and the ranchers must be ready for them. Wolves are very fond of eating goats, sheep, and young deer, and sometimes wolves kill calves. Mr. McDougal tells us that last spring two grown wolves moved into the ranch and made their den under some big rocks. They began to feed their five young ones on the meat of goats and sheep which they killed.

One day a cowboy who was riding fence found seven dead goats and sheep. It was plain that the wolves had killed them. Wolves often kill many more animals than they need for food. Each night the wolves killed five or ten goats and sheep. For ten nights the ground was dry, and every morning there were more dead sheep and more dead goats—seventy-five in ten days. Then it rained, and there came nights without wind and with dew on the ground. When dew is on the ground, the hounds can smell the tracks and follow the wolf even without seeing him.

The Moss ranch people think that wolf-hunting is great sport. When that still, dewy night came, they put the ten hounds in a truck. A horse was put into a two-wheeled trailer behind the truck. Eight people set out to the place, several miles away, where the wolves had been killing sheep and goats. There they let the dogs loose. Each dog started off in a different direction, smelling the ground as he ran. One dog trailed the wolves to their den. Before the other dogs got there to help fight the wolves, the wolves had almost killed him. But when the other dogs arrived, they all ran after the wolves, yelping like mad. For three and a half hours the hounds chased the wolves uphill and downhill, over rocks and through fences. At last they caught up with the wolves and killed one of them. The other wolf got away. The next night the hunters went after wolves again. They got the second wolf and then they went to the den and got the five young ones.

A wolf likes to make his home among rocks.

U. S. Bureau of Biological Survey

Everyone in the community tries to help protect the ranch animals from wolves.

1. Why are the cattle on the ranch wild and those on the Jenkins farm tame?
2. A cold wind comes to Texas from the north. What do the people on the Moss ranch do about this?
3. How are dogs helpful on a ranch?
4. What is the round-up and why is it done?

Ranch Communities on Six Continents

We have read about the Kirghiz in Asia who live in tents and follow their flocks from place to place as they search for grass and water.

Now we have read about the Texas ranch in our own country where the animals live inside fences and where the people live in houses.

In both places it takes a large amount of land to support a family.

Each of these two communities about which we have read is a sample. There are many more people in Asia who live as the Kirghiz live. The grasslands in Asia are large. There are many more people in America who live as the people do on the Moss ranch. The American grasslands are large, too.

There is some of this kind of grassland in South America. There is some in South Africa, and there is some in Australia, and a little in Europe. If we go to any of these far-away places we shall find ranch communities which make us think of the Moss ranch or of the Kirghiz.

While you are in school today, men are out with their flocks and herds in all of these pasture lands in each of the six continents. There are men on horseback riding about among their cattle. There are shepherds with their dogs taking care of sheep and goats. In some places men are riding fence and other men are building fence. Still others are shearing sheep or hunting wolves. Men are branding cattle or dressing their wounds or loading them into trucks and trains.

In each of these six continents the grassland people are talking about the same things. They are talking about the price of wool, the price of sheep, the price of cattle. They are always thinking of grass and of water.

These men in the lands of little rain are always watching the weather.

"Will there be a cold storm tonight that might kill the lambs and the sheep that have just lost their fleeces?"

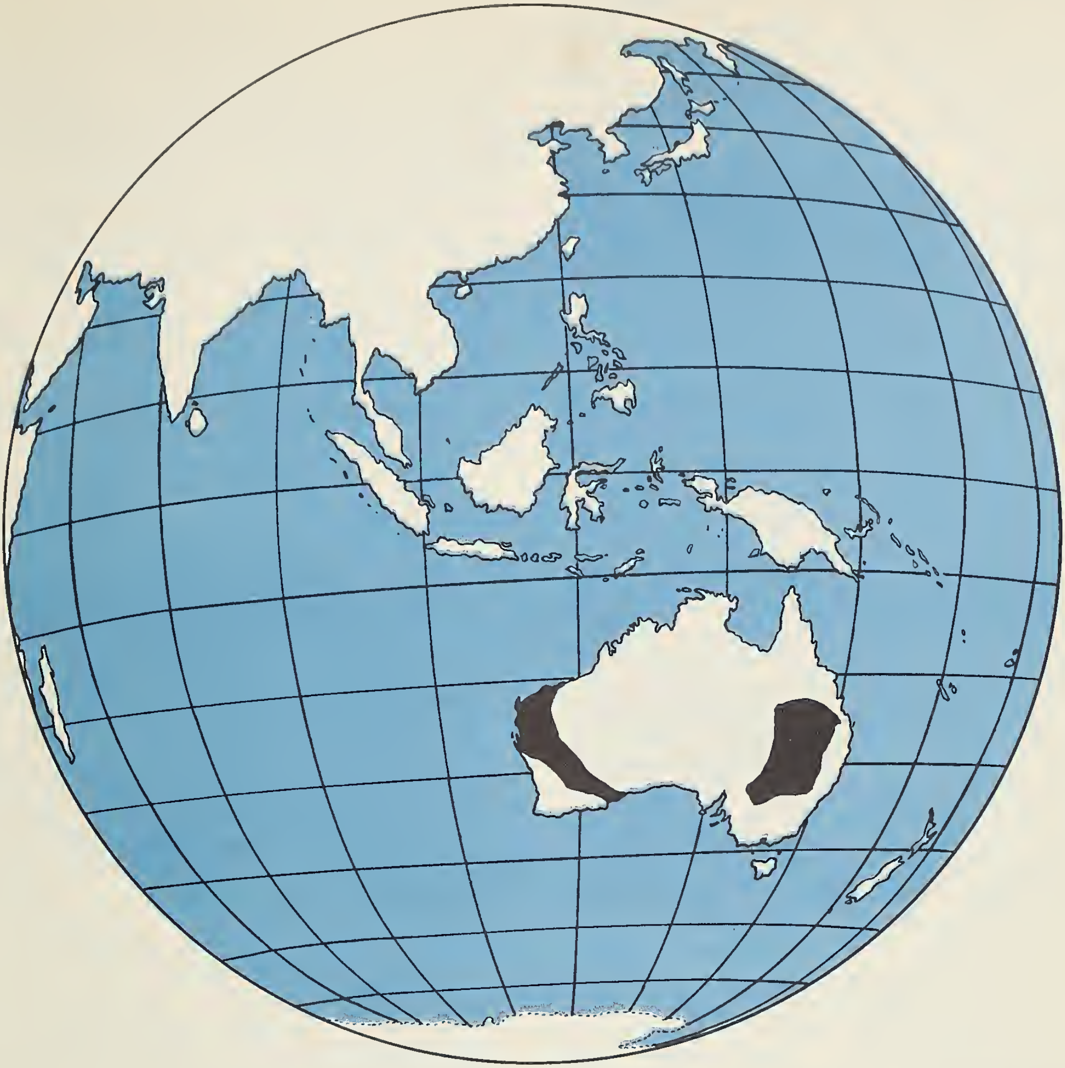
"When will it rain?" they ask each other anxiously.

Drought, drought, drought—no grass and no water! This is the bad dream that bothers the sleep of herdsmen in six continents.

If we go to the seaports near these ranch lands in different parts of the world, we shall see things that make us think of the railway station in Texas. We shall see sacks of wool and sacks of mohair going to market. Perhaps we shall see animals going to the meat-packing plants.

We see lamb and beef such as we see in our own meat store. This meat has been frozen in South America and Australia to keep it fresh on the long trip across the sea. We see men loading the frozen meat into refrigerator ships. These ships have freezing rooms in which to store the meat that goes across the sea to countries in Europe and Asia. Do you remember how the Eskimo on the shore of the Arctic Sea freezes meat to keep it fresh for a long time? The freezing rooms do exactly what nature does for the Eskimo.

In seaport towns near the cool grasslands of South America, of South Africa,



There are two separate areas of ranch lands in Australia. Millions of sheep, more than in any other country in the world, find pasture on the broad, level stretches of grassland in this continent.

Australian News and Information Bureau

Australian News and Information Bureau

Name the countries that have cool grasslands. In which countries do you think a scene such as this might be found? Would you include Central Asia in your list? Why?

and of Australia, we also see sheepskins, goatskins, and cowhides being loaded into ships to go to the United States and Europe. Perhaps the leather of your shoes was once part of a hide or skin that came from somewhere in the Southern Hemisphere. Perhaps the wool in your coat was first worn by a sheep that lived on a ranch in Australia or in South America.

1. Write the names of the six continents that have grasslands.
2. What three things would you see at the seaports or railway stations near all ranch lands?

Some Things to Do

1. Add the word "drought" to your notebook list of terms. Look for the definition of "drought" in your dictionary. Write the meaning of the term in your own words.
2. Prepare a talk to give to the class about why you would or would not like to live on a ranch.
3. Find pictures about living on a ranch. Add them to your scrapbook or make a bulletin board display of them.
4. Model from clay or carve from soap a cowboy on a horse.
5. Write two or three paragraphs about one of these topics—
    a. Branding Cattle
    b. The Wolf Hunt
    c. Riding the Fence
    d. Gardens on the Moss ranch

A Short Quiz

Here is a list of activities that take place on the Texas ranch. Copy the list on a sheet of paper and with each activity write the month or the season of the year in which it takes place.

1. the round-up
2. shearing sheep and goats
3. sending sheep to market
4. selling yearlings
5. hunting deer and other game
6. dressing cattle wounds
7. hunting wolves
8. fishing in the tanks
9. riding the fence
10. branding calves
11. going to school

Stories You Will Enjoy

Rusty Pete of the Lazy AB by Doris Logler and Mrs. Nina Nichol—Macmillan

Cowboy Tommy and Cowboy Tommy's Roundup by Sanford Tousey—Doubleday

Big Loop and Little, the Cowboy's Story by Mrs. Alice Rogers Hager—Macmillan

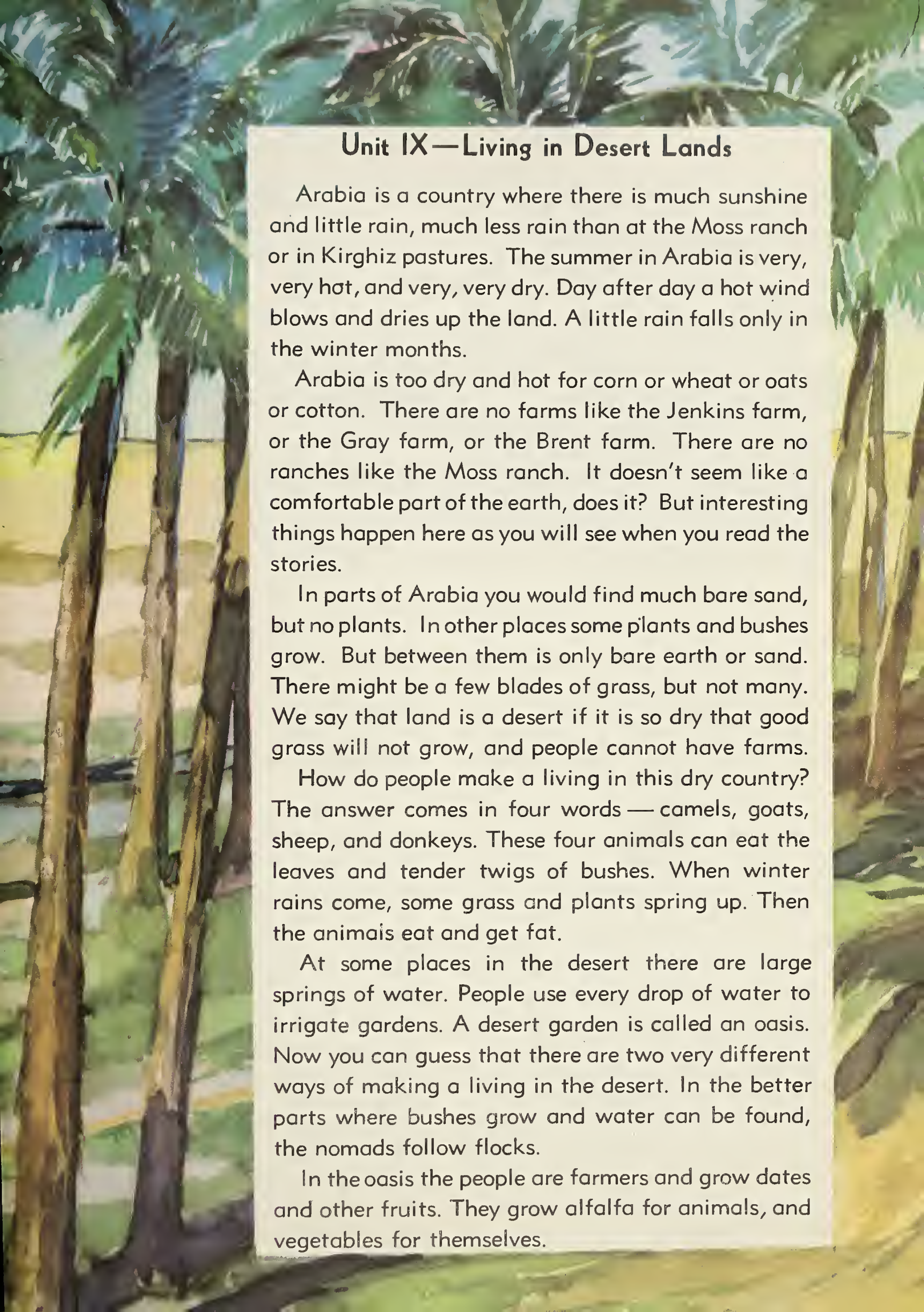
Mario and the Chuna, a Boy and a Bird of the Argentine by Mrs. Esther Greenacre Hall—Random House

Feathers, the Story of a Rhea by Mrs. Alice Curtis Desmond—Macmillan

A Summary

Give the best answers you can to these questions—

1. Why is most of the land in Central Asia used only by nomads?
2. How do the people of the cool grasslands make their work fit the kind of land and weather?
3. Why do you think nomads eat less meat but eat more cheese and drink more milk than you do?
4. Why is "rain" an important topic of conversation among herdsmen?
5. Why is the clothing of nomads and of ranchers different?
6. How would a Kirghiz describe a yurt to a Texas boy? How would a Texan describe a ranch house to a nomad?
7. What is the difference in the use of a fence of barbed wire and one of thorn bushes?
8. In what ways are the people in the Corn Belt, the Cotton Belt, the Fruit Lands and in your neighborhood dependent upon ranchers and herdsmen?
9. What is produced in your neighborhood, your city, or your state that might be used by the people who work and live on the Moss ranch?



Unit IX—Living in Desert Lands

Arabia is a country where there is much sunshine and little rain, much less rain than at the Moss ranch or in Kirghiz pastures. The summer in Arabia is very, very hot, and very, very dry. Day after day a hot wind blows and dries up the land. A little rain falls only in the winter months.

Arabia is too dry and hot for corn or wheat or oats or cotton. There are no farms like the Jenkins farm, or the Gray farm, or the Brent farm. There are no ranches like the Moss ranch. It doesn't seem like a comfortable part of the earth, does it? But interesting things happen here as you will see when you read the stories.

In parts of Arabia you would find much bare sand, but no plants. In other places some plants and bushes grow. But between them is only bare earth or sand. There might be a few blades of grass, but not many. We say that land is a desert if it is so dry that good grass will not grow, and people cannot have farms.

How do people make a living in this dry country? The answer comes in four words — camels, goats, sheep, and donkeys. These four animals can eat the leaves and tender twigs of bushes. When winter rains come, some grass and plants spring up. Then the animals eat and get fat.

At some places in the desert there are large springs of water. People use every drop of water to irrigate gardens. A desert garden is called an oasis. Now you can guess that there are two very different ways of making a living in the desert. In the better parts where bushes grow and water can be found, the nomads follow flocks.

In the oasis the people are farmers and grow dates and other fruits. They grow alfalfa for animals, and vegetables for themselves.

Holmes from Galloway

Chapter 22

Nomads in Arabia

Moving Day in the Desert

Ali is an Arab boy. We visit him in Arabia. We walk across the sand with Ali to some black tents. One of the tents belongs to Ali's family. The tents of six other families stand near it. Ali shows us the sheep and the goats and the camels. We laugh at the camels because they look so funny lying down.

The chief of several Arab families is called "sheik." Ali takes us to the tent of the sheik, or leader of this band of Arabs. The sheik's tent is open at the front. The sheik and some other men are sitting in a circle there, around a small fire. It is early spring and the evening is chilly. The men are wearing loose woolen robes that make us think of blankets.

The men are talking and drinking coffee from small cups.

Says one man, "I have been taking my flock to the east. The animals have eaten all the feed that I can find in that direction."

Other men have gone north and south and west. Each man says the same, "There is no more feed where I have been with my flock."

"Then we must move our camp," says the sheik. When each man goes to his own tent, he tells the women that the camp will move tomorrow. They must move to find grass for the animals.

In the morning everyone is awake before daylight. The sheik's wife steps out of her tent. She pulls the tent pegs out of the ground. The pegs hold the ropes that hold up the tent. When the sheik's wife pulls out the pegs, her tent falls to the ground. The women in the other tents hear the sheik's tent fall.

That sound is a signal to them. They pull up their tent pegs and their tents fall to the ground.

All the women spread the tents out on the ground. They lay the tent poles on the tents and roll them into bundles. They tie the bundles tight with the tent ropes.

Ali's mother, whose name is Hirfa, stuffs the family blankets and clothes into bags. She made the bags herself. She made them out of goat's hair. Not many bags are needed to hold everything these people own.

Before she closes the bag, Hirfa puts a small box in it. She has locked the box and put the key on a string around her neck. In the box, she has a pair of pincers for pulling thorns out of hands and feet, some silver beads, a thimble, some needles, and a little money. Hirfa is very careful to keep these things safe.

The men bring the camels and make them kneel. A camel is so tall that the women cannot put things on its back while it is standing. The women put the bags and bundles on the kneeling camels. They tie everything fast to the strongly made saddles.

The men do not help to load the camels. They say that is women's work. The men put a few sticks on the fire and warm their fingers.

When the camels are loaded, the party is ready to leave this living place and move to another one. This group of seven families is not the only group that is moving. Five other sheiks are moving also. Each sheik has several families with him. These families put their tents near the tent of their sheik. There are about thirty tents altogether.

Now everybody is ready to start. The sheiks go first. Next come the camels that carry the goods. Then come the camels that carry the women and children. The men and boys walk and drive the sheep and the goats and the camels that are not carrying the goods.

At noon Ali's family and all the other families stop to rest. The women milk some sheep and goats. Everyone drinks the milk. Then, after resting for a while, they move on again. The women walk and spin yarn, and the animals browse as they go.

Arab women must spin much yarn of goat and camel hair. Then they weave the yarn to make cloth. The cloth is used for making tent tops and bags. They spin the wool of sheep and weave it into a finer kind of cloth. The women make warm clothes for the family. Winter is sometimes cold and summer nights are cool, even on the desert. Every Arab has a garment of wool.

1. Locate Arabia on a globe or a map.
2. What does Hirfa put into the small box? Why is she so careful to keep these things safe?
3. Why do the Arabs need clothing made of wool? When do the women spin yarn?

The New Camp

The party moves along slowly for several hours. Now the sun is getting low. The head sheik stops. He sticks his long staff into the ground. There it stands. The staff shows where his camp is to be. Each of the other sheiks also chooses a place for his camp.

Ali's family put its tent near the tent of its own sheik. The women make the camels kneel. They take the bags and bundles from the camels' backs. They put up the tents and take their goods out of the bags. The men do not help with this work. The men build a small fire and roast locusts. Locusts are big, fat grasshoppers which the desert people are very fond of eating. Sometimes the nomads carry bags of dried locusts.

Hirfa, Ali's mother, puts three stones in front of her tent. She sets her big iron pot on the three stones. Then she makes a little fire under the pot. The other women do the same.

Now the women spend a busy hour cutting thorn bushes. They bring the bushes to a place near the tents and pile them to make a fence. The fence of thorn bushes makes a round pen for the sheep and goats. Hirfa drives her goats and sheep into the pen. She closes the opening with more thorn bushes. Now the flock is safe for the night. The sheep and goats cannot walk over the fence of thorn bushes.

Hirfa milks her goats. For supper everyone has milk again, and a few dried dates that Hirfa carries in a leather bag of camel skin. She has carried those dates for months. Ali's father bought them in the autumn and now it is spring.

We hear a sound of something being pounded. The sound comes from the sheik's tent. The same sound comes from almost all of the tents. Ali tells us the women are pounding coffee beans. The Arabs like coffee. Every family in the camp expects to have coffee after the evening meal and at other times, too. Hirfa boils water for coffee in the pot she has set on the three stones.

The six sheiks sit around the fire of the chief sheik and drink coffee from small cups. They talk about the camp and decide what needs to be done.

The other men visit in the different tents and tell each other the news. They drink coffee together. At bedtime each returns to his own tent and lies down on its floor of sand to sleep.

In Arabia the nights are always cool, and sometimes even cold. For more than half the year the heat is very great during the day. But when the sun goes down, the dry sand cools off quickly. There is not enough fuel to heat the tents. When the Arab lies down at night, he wraps a woolen robe about his body and perhaps uses woolen blankets besides. We are very glad to see Ali bringing robes and blankets to our tent. We wrap them around our bodies and lie down on the sand.

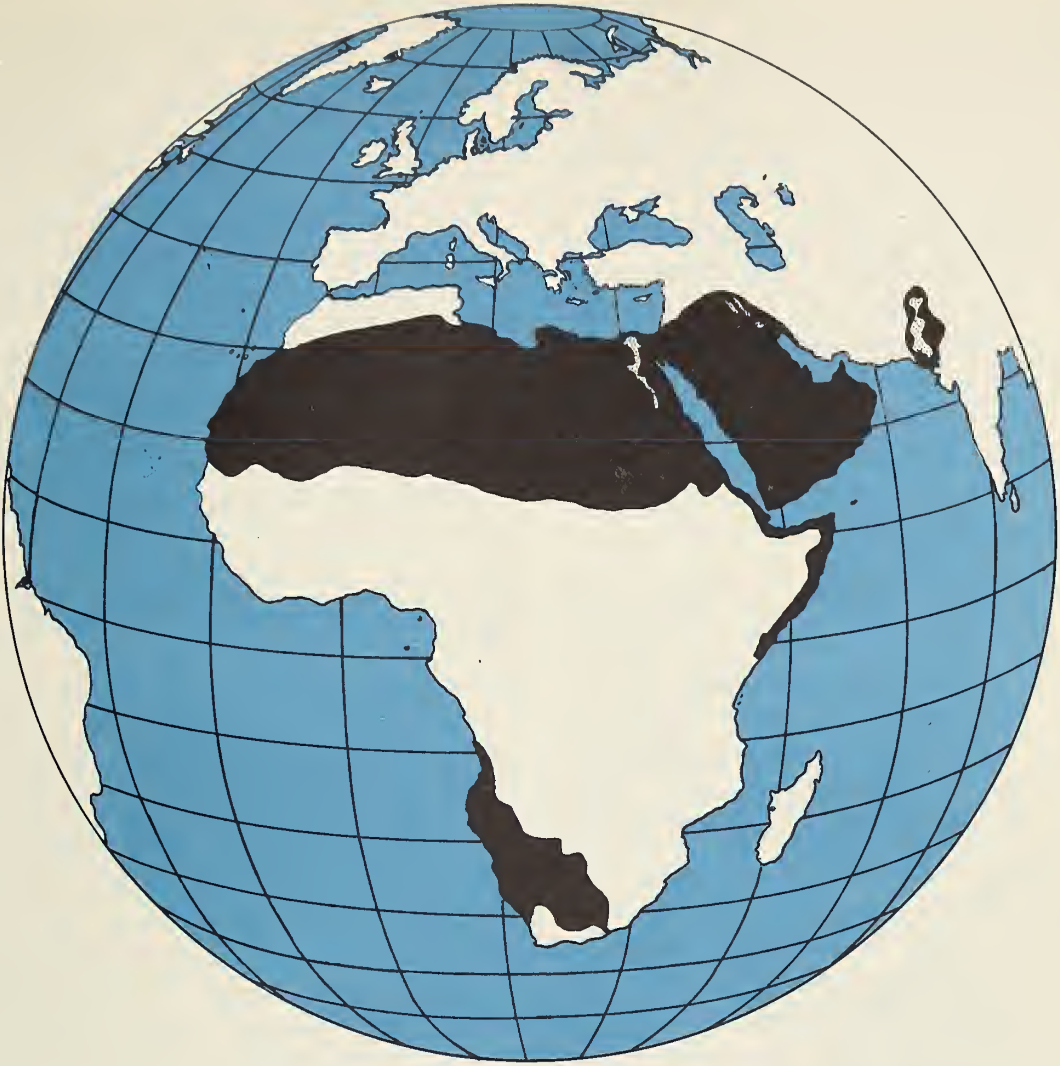
Everyone is up at daylight. The women milk the sheep and goats. The men milk the camels. After drinking as much milk as they want, everybody goes about the day's work. Ali's older brother takes the sheep and goats to pasture. Ali helps his father bring water.

The women make butter in a churn made of the skin of a goat. Goats have tough skins. The skins are very good for holding water or milk. Hirfa pours some milk into the goatskin churn. She sits down and holds the churn in her lap. She rocks her body forward and backward. "Slosh, slosh," goes the milk inside the churn, as Hirfa rocks back and forth. "Slosh, slosh, slosh, slosh," is the sound we hear.

After a while we hear a different sound. Hirfa knows what that sound means. It means that the creamy part of the milk has turned to butter. She empties all that is in the goatskin churn into the big iron pot. She takes out all the lumps of butter and puts them into a goatskin bag.

Tonight the family will have a real feast. They will eat dates dipped in melted butter. The bag will certainly be empty after they have eaten all of the dates.

After the butter has been taken out, the iron pot is still half full of buttermilk. Hirfa makes a fire of thorn bush



The largest area of desert land in the world is in Northern Africa. This desert, the Sahara, is almost as large as the United States. The desert in Arabia covers almost all of that country.

British Combine Photos, Ltd.

sticks under the pot. She boils the buttermilk until most of it has gone away like steam from a boiling teakettle. The buttermilk that is left has become thick like cooked oatmeal. With her hands Hirfa shapes the thickened buttermilk into small cakes. She lays the cakes on the roof of the tent to dry. When they have dried in the sun for about two days, the cakes will be hard like dried bread. Then they can be kept for a long time, even for a year or two.

It is now springtime in Arabia. It is just after the winter rains have stopped. Many desert plants now have leaves. There is a little grass in some places. There are some little plants that spring up and grow for a few weeks after the rains. The sheep and goats can get more to eat than at any other time of the year. At this season these animals give milk. But they give milk for only a few weeks. This is the time to put away food for a time of need.

When Hirfa boils buttermilk and dries it in cakes, she is saving food for a time when food will be scarce.

Mrs. Jenkins and Sue and the Brents saved food when they canned fruit and vegetables. People in nearly all countries save some food for a time of need. Hirfa saves food in the way best suited to Arabia.

In the late summer and in autumn and winter these Arabs will have no milk to drink except the milk of camels. There will be less of that than in the springtime because the hot weather dries up the bushes. There will be less food for the camels. If a camel does not get plenty of food, she cannot give so much milk.

When these days of hunger come, Hirfa will go to the bags where she keeps the cakes of dried buttermilk that she has made. Each person will take one of the cakes and rub it between his hands. The cake will crumble like cracker crumbs. Stir it into a cup of water and there is a cup of milk to drink.

1. List six different kinds of food the Arabs enjoy. Would you enjoy these foods?

2. Why is there less milk to drink late in summer and in autumn?

3. How does each of these people save food —Hirfa, Mrs. Jenkins, the people in California.

The Flocks Go to Pasture

While Hirfa is busy with the milk and butter, her son, Aroz, tends the sheep and goats. We say Aroz is a shepherd, because he takes care of sheep. After his breakfast of milk, Aroz moves some thorn bushes from the fence around the cattle pen. Then he turns and walks away. As he goes he calls, "Come!" The sheep and goats follow him. They know his voice. They know that Aroz is their friend. They follow him as a dog follows his master.

Aroz walks slowly away from the camp. The sheep and goats follow and browse as they go. If any of the flock goes too far to the right, Aroz throws a stone with his sling. The stone does not hit the sheep, but falls near it. The stone tells the sheep that Aroz wants it to go the other way. If a sheep goes too far to the left, Aroz throws a stone over there. He can throw stones with a sling almost as well as some people can shoot with a gun. In the Bible there is a story about David, a shepherd boy. The story tells how David used his sling.

In two or three hours the animals have had enough to eat. The sun is getting hot. Aroz leads his flock to a place where there are some big rocks. Some of the sheep stand in the shadow of the rocks where it is cooler. Some put their heads under a bush and pant in the heat. The goats lie down in small groups by themselves. Sheep and goats do not lie down together.

Aroz milks a goat. He catches the milk in a small wooden cup or bowl that he has brought with him. He drinks the warm milk for lunch. Perhaps you think that this is not enough food, but Aroz is a strong, healthy boy. Milk is an almost perfect food.

After his meal of milk, Aroz lies down in the shadow of a big rock. Everything is quiet. The shepherd and the flock are resting and trying to keep cool. Aroz lies in the shadow of the rock until mid-afternoon. It is getting cooler now. The animals get up from their resting places. They are ready to eat again. Aroz calls them and they follow him as he walks slowly back to camp. The sheep and goats browse as they walk. By the time the animals reach camp, they have had supper.

Some of the sheep and goats run into the tent where Hirfa is. They crowd around her. They want her to milk them. Every woman in the camp is milking, and the children stand near by, waiting for a drink of milk.

People of the desert wear clothing that will protect them from the sun. Long, loose robes are cooler than tight-fitting clothing. A large piece of cloth worn over the head protects the face in a sandstorm.

Black Star

The camels do not go to pasture with the sheep and goats. The camels of several families go off to browse as one herd in the care of two or three men. The men of the camp take turns with this work.

This is not the day for Selim, Ali's father, to herd camels. Today he and Ali go to bring water. They take two big water bags of goatskin and two small bags. Selim rides a camel. Ali rides a donkey and leads another one.

After three hours of riding, they come to a well. The well is only a hole in the ground. You would need to be careful not to fall into an Arab well. Selim has a leather bucket on the end of a long rope of leather. He lets the bucket down into the well and pulls it up full of water. He pours the water carefully into one of the goatskin bags.

When the bag is full, Ali ties the opening with a leather string. He is careful to tie it tight, very tight. He knows that every drop that leaks out will be lost. He remembers that it is three hours' ride from the camp to the well. All the water they have in camp is carried from this well in goatskin bags on the backs of camels and donkeys.

Ali and his father ride back to camp with the four goatskins full of water. The two big ones are on Selim's camel. The two smaller ones are on the donkey that Ali leads.

1. Tell about the day's work of an Arab shepherd.

2. Have you ever tasted milk from goats? Goat's milk is easier to digest than cow's milk. You may want to find out for yourself why this is true.

Nomadic Arab children have little opportunity to attend schools such as you have. In the open, on the wind-swept sand, a member of the tribe teaches a class. These boys seem eager to learn the meaning of the words their teacher is writing in the sand.

Gendreau

3. What other group of nomads that you have read about in this book use goatskin bags to carry water?

Moving Day Again

In a few days, the animals have eaten all the grass. So the families must move their camp again. Away they go with their bags and baggage, tents and tools, cooking pots and drinking bowls!

Everything they have except their animals is on the backs of camels or donkeys. The Arabs are driving their animals before them as they move to a new living place. The camp they are leaving is now only a bit of trampled earth and some piles of ashes. By one of the ash piles are three black stones. Hirfa's big cooking pot had rested on those three stones while she boiled the buttermilk and boiled meat the day they killed a goat. Ali tells us that one can see three cooking stones together in all the camel pastures of Arabia. The three stones show where people have camped.

As they move along toward a new camping place, Selim looks to the left many times. At last he sees some rocks that stand higher than a man's head. Two of these rocks are even higher than the rest. These two rocks show the way to a secret place which no one but Selim knows.

When he comes to a place where he is in line with the two rocks, Selim walks slowly toward the first one. He looks carefully at every bush. He pokes the ground near the bushes with his staff.

"Aha," says Selim, "there it is!"

His staff has found a soft place behind a certain thorn bush. Selim begins to dig. Ali helps him. They move some sand. Underneath the sand is a leather bag of camel skin. They pull it out with a shout. The bag is full of dates!

Black Star

The Arabs make most of their own clothing by spinning and weaving the wool of their animals. After a piece of cloth is woven, knots must be tied at the end to keep it from raveling.

Hirfa hurries to open the bag. She gives a handful of dates to each member of the family except Aroz. Aroz is not with the others. He is with the flock as it browses along the way.

"I am glad," says Selim, "that I bought these dates from that trader last autumn in one of the places where we camped for the night. These dates taste very good indeed."

"Yes," says Hirfa, "I remember that you gave the trader ten goatskins for two bags of dates."

Selim did not want to carry both bags of dates all winter. So he buried one of them behind the thorn bush in line with the two high rocks. He was careful that no one saw him burying the dates. Now the family will have dates with their milk again.

The Arabs move on again. Each of the six sheiks rides a horse. These six ride together most of the time. They look very grand indeed on their fine horses.

The sheik has much trouble to keep his horse in this dry country. The camel is a desert animal. He is at home in the desert. The camel does not worry if he gets a drink of water only once every three days. He can get along nicely with that amount even in hot weather. But the horse comes from lands where there is plenty of water. He needs to drink water every day. In hot weather he needs to drink two or three times each day.

The sheik has a certain camel that does nothing but carry water for the horse. He has another camel that gives milk for the horse to drink. When the horse hears the sound of milking, she pulls at her halter. She likes milk. Sometimes someone will take a knife and cut tender branches for the horse. Sometimes the horse is given some of the family bread, even though bread is very scarce among the tent people. As you see, the Arab loves his horse and is very proud of him.

After a few days Ali's people find another camping place. Once again, the sheiks choose places for their tents. The women unpack the goods and make a pen of thorns to keep the animals safe at night. We have our supper, drink coffee, and lie down to sleep, rolled in blankets.

These things are being done by thousands of Arab people in many camping places.

Early the next morning we notice a low rumbling sound that comes from the sheik's tent. The sheik's wife is grinding barley. She will make bread from barley meal.

To make the meal the woman sits on the floor beside two flat stones. The heavy flat stones are placed one on top of the other. The top stone has a hole through the middle. The woman drops some grains of barley into the hole with one hand. With the other hand she turns the top stone around and around. It turns on the bottom stone. As the top stone turns, it presses against the bottom stone. This crushes the grain. This kind of stone mill is called a quern. The quern grinds very slowly. It takes the sheik's wife two hours to grind enough barley to make bread for three days.

There was a time when our people ground grain for meal and flour with a quern. Now we do it much more quickly and easily by machinery.

The sheik is the only man in his group who has a mill for grinding grain. Because the stones are heavy to carry, only a few families have them. The Arabs take the grinding mill with them when they move.

When the sheik's wife has enough barley, Hirfa will borrow the mill. Six families use this mill. Hirfa will make the sheik's wife a present of some water. She will give her enough water for a good drink, and a little more for washing her face.

When Hirfa finishes grinding barley, she makes barley bread. She mixes water with the barley flour. She pats this with her hands to make a thin flat cake. She has made a fire of thorn bushes. When the fire is burned out, only some hot ashes are left. Hirfa rakes a part of the ashes aside. She puts the cake of barley in the ashes and covers it with more hot ashes. That is her oven.

British Combine Photos, Ltd.

Date palms grow in the desert wherever there is any water. The trees are from 60 to 80 feet tall and 100 to 200 pounds of dates can be gathered from each tree. Date palms are known to live as long as 150 years, though as they grow old they do not bear so much fruit.

Bread that the Arabs bake in this kind of oven is good bread. For supper that evening the family has hot barley bread with milk. They have a treat, too. They eat dates dipped in melted butter.

1. How can one tell the places where Arabs have camped?
2. Why is it hard to keep horses in the desert? Why are camels suited to the desert?
3. Why must Hirfa borrow a quern from the sheik's wife?
4. Do you think a cup of water would be a good present in the desert? Why?

The Raid!

Ali's people have been in their second camp for three days. It is early morning. An hour ago three of the men drove about seventy camels away to pasture. These are about half of the camels that belong to this group of families. Soon one of the camel herders comes back to camp as fast as his camel can run.

"Raiders!" he shouts. "Raiders!"

All the people rush out of their tents in great excitement. "Where are the raiders?" they cry.

"The raiders were hiding behind the big rocks," says the herder. "They came upon us suddenly. They took every one of our camels! Now the raiders are going north as fast as they can go. There are twenty of them. They shot the camels of the two other herders. I got a bullet in my arm."

It is the law among these tent people that every man who has a good camel

Triangle

The sands of the desert are always moving. In a few hours a hollow spot may fill up and become a hill. Many people say the sand dunes look almost like the waves of the ocean.

must go after the raiders. He may not have lost any of his own camels. But he must help to get back the camels that have been taken from the people of his camp.

There is much noise and running here and there. Saddles are put on camels. Waterskins are tied tightly to saddles. Too much water must not be put in the waterskins. The camels must carry only light loads. They may have a long, hard journey to make. Raiders sometimes drive a camel herd as much as 50 miles the first day.

The women make ready packages of food. Each man takes a small package of dates and some dried milk. The lucky ones have a little bread as well.

Ali wishes that he could chase raiders. When he is a little older, he will be able to go with the men. Aroz, too wishes that he might go. But he has to herd the sheep and goats.

The men soon are ready. They mount their camels. Horses cannot stand this journey. Chasing raiders is too hard for horses.

"We'll get them!" shouts the leader as they ride away. "When they sleep we will attack them! We will get our camels again! Tomorrow night every camel will be lying beside the tent of its own master." And they ride away.

Only the women, children, and old men are left in the camp. Trying to catch raiders is very hard work. Old men do not go.

Everyone talks about raids. They stand in groups and talk and talk. They talk only about the raid and raiders. They tell one another about other raids. "Shall we ever see our camels again?" they ask.

The next day the people in the camp begin to watch for the first sign of the men coming back. They watch all day long, but see nothing. On the third day they watch and still see nothing.

"The raiders must have gone a very long way indeed," say the women.

On the fourth day, in the middle of the afternoon, someone gives a loud shout!

"Here they come! The men are coming!"

But soon the women stop shouting. The longer they look the more sure they are that the men are not driving a herd of camels.

As the men come near the camp, each rides apart from the others. Each goes to his own tent. No one speaks. Everyone in the camp is quiet. At last the sheik speaks from his dry, thirsty throat.

"Peace be with you!" he says. He sits down with a sigh, and begins to speak. "On the second day we were following the tracks of our lost camels. We were crossing miles of bare sand in the northern desert. There came a wind. Dust began to fly. Grains of loose sand began to fly. Then we heard a rumbling sound. It sounded as though thousands of horses were galloping behind us. Then a very strong wind came quickly. The wind blew the sand all about us. Soon we were in a cloud of flying sand. The sand-cloud was so thick that we could not see one another.

"Our camels lay down with their backs to the wind. We lay down beside the camels. Their big bodies broke the force of the wind a little. We covered our bodies and heads with our blankets. Still the sand kept getting into our eyes, our noses, our mouths, our ears. Sand went through our clothes and tickled our bodies. For hours gusts of wind blew clouds of sand and dust over us as we lay there beside the camels.

"I remembered that my grandfather lost his life in a sandstorm. I was afraid. At last the wind stopped. I was buried under sand. Sand more than a foot high was piled against my camel. When the storm began, we were following the tracks of our stolen camels. When the storm stopped, there were no tracks to be seen. We could follow no more. We could not tell where the camels had gone.

"We came home by the wells of Tana. There we learned that some of the raiders had been that way. The camels drank at the wells there. People at Tana saw them. The people told us who the raiders are. We will raid them some day and get our camels back."

"Yes we will!" say all the men.

Before the raid every family had five or ten camels. Now some families have no camels at all. But a law of the desert takes care of this. The six sheiks go among their people. From a rich man the sheik takes a good, strong, full-grown camel. From a man who is not so rich the sheik takes a young half-grown camel or perhaps an old camel. From a poor man he takes a few sheep or goats. These animals are given to the people who have been robbed.

At some other time the men who gave these animals may be robbed. Then they will have animals given to them. That is the law of the tent people of Arabia.

1. Tell the story of the raid to someone at home.
2. What is the law the tent people of Arabia have about animals? Discuss with your classmates whether this is a good law or bad law.
3. What can you tell about camel tracks and desert winds?

Ali's Family Visits an Oasis

Ali's people keep on camping and moving, moving and camping for three months. One day they see something ahead that they have not seen for many months. It stands up above the gray sand and the few small bushes. The dark

J. Russell Smith

Water—a pond or a spring—makes an oasis. If there is water, people and animals can live there and gardens and date palms can grow. What do you think would happen if this water should disappear?

green that they see in the distance is the tops of trees. If trees can grow in a desert, that place is called an oasis.

Why do these trees grow in the desert? What makes an oasis? One word answers both questions—water. There is a spring in this place. Water runs out in a big stream from under a rock. The stream is about four feet wide and a foot deep. It is the water that makes the oasis and causes the trees to grow.

People live near the spring. They have all the clear, cool water they can drink. They use water on their gardens and their little fields. They use every drop of it. These oasis people are farmers. An oasis farm is only a small patch of land, even smaller than a Chinese farm. But it gives big crops. Oasis land is good land.

The oasis farmers of Arabia plant almost all of their land to palm trees. These trees are date palms. The date palm is very, very useful to the people of the desert. Dates are good food when eaten fresh from the trees. When dried, dates may be kept for a year or more. The oasis people pack their dried dates in boxes and in camel-skin bags. They put them in old tin cans if they can get them. They have dates to eat every day of the year.

The leaves of the date palm are open and stringy. Enough sunshine comes through the leaves of the tree to give light to smaller trees underneath. So the oasis farmer may have oranges, figs, peaches, and other fruits growing beneath the palms.

The oasis farmer does not move from place to place as the tent people do. Instead of a tent for a dwelling place, he lives in a house whose walls and roof are made of mud. Logs made of the

Keystone View Co.

A camel caravan crosses the Sahara desert. Almost every part of the world has a beast of burden to fit its needs. The camel can live in the desert, and it provides means of transportation.

trunks of palm trees hold up the roof of his house. If he has any furniture, he makes it of palm wood. The cooking fire is made of the ribs of the old palm leaves which he cuts off the trees every year.

When the oasis farmer needs baskets, he braids the long, stringy palm leaves and makes them into baskets or bags. He also makes tents of braided palm. He uses these tents when he camps by his garden to watch that thieves do not steal his crop.

The oasis farmer does not live in his garden. He would not think of building a house on good earth. Earth that will yield crops is too valuable for that. All the people of the oasis live in small villages outside of the place where crops can be grown.

In addition to his date palms and fruit trees, the farmer grows vegetables on his little farm. He has beans and onions, tomatoes and eggplants, pumpkins and melons. But there are other crops that grow under the palm trees. Alfalfa is one of these. Alfalfa, a tall kind of grass, is very good feed for animals.

Suppose you asked a goat, a sheep, a horse, or a camel, "What is candy?" If they could talk, they would all cry, "Alfalfa! Alfalfa is candy! We want alfalfa!" The oasis people keep goats and donkeys. Some of them keep cows. All of these animals eat alfalfa. Besides the alfalfa fields there are little fields of wheat and barley growing in the oasis.

It is nearly sunset when Ali and his people reach the oasis. Selim's grain sacks are empty. The family has no grain to grind in the mill. They cannot eat bread again until they get wheat or barley. Ali tells us that one reason why they have come to the oasis is to buy grain.

Ali's people put their tents close beside the village. We go with Ali and his father to walk through the gardens. We look at the date palms with their leaves waving gently. We see their bunches of brown dates. We look at the fig trees and the peach trees and the bright green alfalfa.

"Is there anything else in all the world so beautiful?" asks Ali.

"No. And it is so shady and cool, too," says Selim.

The oasis village has no store. But there is a market at the edge of the village. At sunrise the next morning we all go to the market. The oasis women have spread mats of palm leaves on the ground. They put what they have to sell on the mats. One woman has a pile of figs on her palm leaf mat. She sits on the ground beside the mat, waiting for someone to come and buy her figs. Another woman has beans, another has loaves of barley bread. Some of the men have big bags of wheat for sale. Others have bags of dried dates. Many people are there with things to sell. Many more people are there to buy.

"How much for this?" "How much for that?" They talk and bargain and tell each other the news as they walk about in the market.

Ali's mother sells a goatskin full of butter. She buys three bags of dates and a big loaf of barley bread. Selim sells some sheep and buys a bag of barley and a bag of wheat. The sheiks buy big bundles of alfalfa for their horses.

Then someone shouts, "Here comes a caravan!"

Everything at the market stops while the people watch a caravan coming from the desert. Camels carrying big bundles on their backs are coming over the hill. One, two, three, four—and still they come. There are twenty of them, with men walking beside them.

These men are traders. They make their living by buying and selling things. They go from place to place. They are always on the move, buying and selling, selling and buying.

This caravan has come from a city by the sea. It is many days' journey by camel from that city to this oasis. The traders had gone down to the sea with their camels loaded with dates and wool and goatskins. They sold these things in the city by the sea. Then they bought things that had come to the city in ships from countries far away. They knew the desert people would like to buy these things. Now the traders are going through Arabia, selling the goods to the tent people and to the oasis people.

The traders unload their camels. They put the big bundles on the ground. They open the bundles and begin to trade. Hirfa sells some wool to one trader. For the wool she gets some tin plates and cups, needles and thread, a pair of scissors, and an alarm clock. She also buys a cotton dress and a pretty comb for her hair.

Ali's father sells some goats to an oasis man. With the money he buys a pistol and some cartridges from the traders. He also buys a pocket knife for Ali and a big hunting knife for Aroz.

Almost every person in the oasis village wants to sell something to the traders or to buy something from them. This is a busy day of bargaining and of buying and selling. "I'll give you two —," "No, no, I must have three —," and so it goes on, all day long.

The next morning the tent people are gone at daylight. There is no food for their flocks near the oasis. The goats of the oasis people eat all there is. The tent people have to buy alfalfa or move. They move. They go back to the desert and look for bushes for the animals to browse.

It will be months before the desert people get back to the oasis village. They call it their market village. They expect to come to their market village two or three times a year. That is their chance to get goods of the kind we buy in our stores.

But the desert people like their life of coming and going, moving about and following their flocks. They think that this life is much better than life in an oasis. To be sure, they have to follow the flocks winter and summer, springtime and fall. But they are used to that kind of life.

When the tent people have put up their tents for the night and have milked the animals, they sit and talk about the oasis and its people.

"Father," asks Ali, "would you like to dig and pull weeds and water vegetables in an oasis garden?"

"No," replies Selim. "I am a free man of the tent people. Oasis people can dig in the ground. I am a man of the desert."

The oasis people may be talking at the same time about the desert people.

"Oh," they may say. "Those are only tent people. It is all right to buy sheep and wool from them, and to sell dates and barley to them. But they are here today and gone tomorrow. Who would like to live as they do?"

The tent people are always talking about water. Is there water in the waterskins? Is there enough water to last until tomorrow evening? How far is it to the next well? Does that well go dry in the very hot summer? All through the dry, hot summer there must be water for people and water for animals. The sheep and goats and donkeys must be taken to the well every two days. It takes hours and hours of hard work to lift the water from the well by bucket and give drink to a flock of sheep. The camels must drink every three days.

Black Star

From Geddah, a port on the Red Sea, men go out in their boats to fish and to dive for pearls. Two Arab tribesmen watch a fleet of fishing boats.

Ali's people have nearly a hundred camping places. They visit most of them every year. They say that this part of the pasture land of Arabia belongs to them and to the other people of their tribe.

You remember that the Kirghiz people belong to a tribe. These people of Arabia tell us that there are about two hundred and fifty families in their tribe. They move about in groups of twenty or thirty families. These two hundred and fifty families say they are one people. They will not make raids on one another or take one another's animals.

Ali's father and mother have never been away from the land of their own tribe. Their sheik once went with a caravan to the city by the sea. He often talks about the sea and the ships and the wonderful things that he saw in the city by the sea. But Ali and his father and most of the people of their camps have never seen in all their lives anything except their own thorny pasture land, their market village, and a few other small oases.

Most of these people cannot read. They have heard a radio in the market village. It was singing songs and telling jokes and stories in the Arab language. Ali's people think that all the world is like the part they know.

A short time after Ali's people leave the oasis, they meet two strangers traveling in the desert.

Desert people are kind to strangers. Hirfa gives the strangers a drink of water. She also gives each of them three ounces of water that they may bathe as townspeople do.

Ali's father shows them a place to put up their tent. He hurries to milk a camel. He gives the strangers bowls of camel milk. The sheik orders a lamb to be made ready. He gives the strangers a supper of boiled lamb. That is their best meat.

The strangers and the Arab men sit together around the fire after the meal. The sheik asks, "What is the name of your market village?"

"New York," says one of the strangers.

"How many camels are there in New York?" asks the sheik politely. "Tell us the names of your enemy tribes. Perhaps we know them."

1. List six uses that are made of the date palm tree.

2. Ali's people buy an alarm clock, a cotton dress, and a gun and cartridges from the traders at the oasis. From what countries do you think these things may have come?

3. What is the chief concern of the nomads of the desert? Why?

Some Things to Do

1. Use these words in sentences to show their meaning—

shepherd	quern
sheik	alfalfa
browse	caravan

2. Add the words, "desert", "oasis," to your notebook list of definitions of geographical terms.

3. Make a model from clay or a carving from soap of a camel, a sheep, a goat, and a donkey.

4. Collect pictures of animals in Arabia to add to your scrapbook.

5. Tell in what ways moving day in the desert is different from moving day in the grassland of Asia.

6. Write a paragraph telling how the Arab women grind barley and make bread.

A Short Quiz

Here are some sentences that have been cut apart. Copy the first part of the sentence from the column at the left and complete it by choosing the correct ending from the column at the right.

c 1. There are no farms or ranches in Arabia
A 2. Many desert plants have new leaves in the springtime
B 3. The camel is a good desert animal
E 4. The oasis farmer can have gardens under the date trees
d 5. The tent people can stay at the oasis only a short time

a. because the winter rains help them to grow.
b. because he can go without water for several days at a time.
c. because it is so very hot and dry.
d. because there is no food for their flocks.
e. because the sunshine can get through the leaves of the palms.

Galloway

Chapter 23

Other Desert Lands

Sahara—The Great Desert

There is a desert land from the western part of Africa all the way across the continent. The Arabs called this desert "Sahara." Sahara means "great desert." This is the largest desert in the world. It extends from the Atlantic Ocean all the way across Africa to the Red Sea. On the other side of the Red Sea the big desert begins again—the Arabian Desert. We might almost say that the Sahara Desert and the Arabian Desert are one desert. The Red Sea cuts it into almost two parts. Along the northern edge of the Sahara we would find tent people living as Ali's people do, by following flocks.

Some parts of the Sahara are heaps of sand which are piled up by the wind. Every time the wind blows, it moves the sand a little. It may move just a few grains at a time, or a hard wind may move so much sand that there is a sandstorm. Some parts of the desert are bare rock because the wind has blown all the dust and sand away.

There are many small oases along the northern edge of the Sahara. There are also some small oases far out in the desert. All of these are much like the one in Arabia which Ali's people visit. Camel caravans sometimes cross the Sahara by going from oasis to oasis. It is a long, hot, hard journey.

A few people have crossed the Sahara in automobiles. There is no regular road. It might take a week to go all the way across. There is always danger of getting stuck in the sand. The desert automobile has many wheels—sometimes twelve wheels. This car will not sink so easily into the sand.

Valerie Jean Date Shop

Like the fruit of many palm trees, dates grow in large clusters. More dates are grown now than formerly, for man has begun to irrigate desert lands.

Many people have crossed the Sahara by airplane. An airplane can fly across it in a few hours.

1. On a globe or a map locate the great desert in Africa and in Arabia. What sea separates Arabia from Africa?
2. Learn to write the name of the great desert in Africa.
3. Name three means of crossing the desert.

Oases of the Desert

In North Africa there is one very large oasis, larger than all the other oases of the Sahara put together. It has more people than all the other oases have. It takes a lot of water to make such a large oasis. Water for this oasis is brought by a river that flows into the desert.

The name of the river is the Nile. The Nile rises in some mountains far away to the south. There is much rain in these mountains and the rain fills the streams that feed the river. The Nile is the longest river in the world. It flows right through the Sahara from the mountains to the sea. The country through which the Nile flows is called Egypt.

The Nile gives the people of Egypt a wonderful supply of water for their farms. It is the most helpful river in the world. Most rivers have floods that make trouble for man. The flooded river gets too full of water. It flows swiftly over its banks and washes away houses and fences, crops and roads. Sometimes people and cattle are drowned in floods.

The Nile has floods too, but they are very gentle floods. The river rises slowly, only a few inches each day. At last the water flows over the banks of the Nile and spreads slowly across the fields. The Egyptian people know how high the water will get. They have built their houses where water will not reach them.

The flood water spreads over the fields that are near the banks of the river. The ground is soaking wet. The water is slightly muddy and the mud settles on the fields. This mud is rich in plant food. It fertilizes the fields.

As soon as the flood goes away, the Egyptian farmers sow seeds of wheat and of barley, of cotton and of vegetables. They sow the seed in the soft mud that the river has left behind. There is enough water in the ground to make the plants grow. For thousands of years the Nile has watered the land along its banks. Every year men have sown seed and gathered crops on this good land. Every year boats have gone up and down the Nile, carrying farm crops to the markets in cities along the banks of the river. The people of Egypt have been fed by crops grown with the help of the Nile water. Do you see why the Egyptians call this kind and helpful river, "Father Nile"?

We have seen that Africa has one great oasis. But the continent of Asia has two great oases. They are like Egypt in the way they get their water. They are fed by rivers that flow from high mountains into dry, hot valleys.

One of these great oases is watered by the river Indus. The other is watered by two rivers, the Tigris and the Euphrates.

In North America there is another great oasis in a small desert. This desert is hot and dry like the Sahara. But a great river called the Colorado flows into it. The Colorado carries water into the American desert as the Nile carries water into Egypt. Some people call this part of our country "The American Egypt."

Date palms grow here as they do in Egypt. People found out how much our great oasis was like the oasis of North Africa. So they went to the oasis in Africa and got young date palms. They brought the young trees to America and planted them in our oasis. The palm trees are watered by the Colorado River. These date palms now are grown tall. There are many of them and they bear large crops of fine dates.

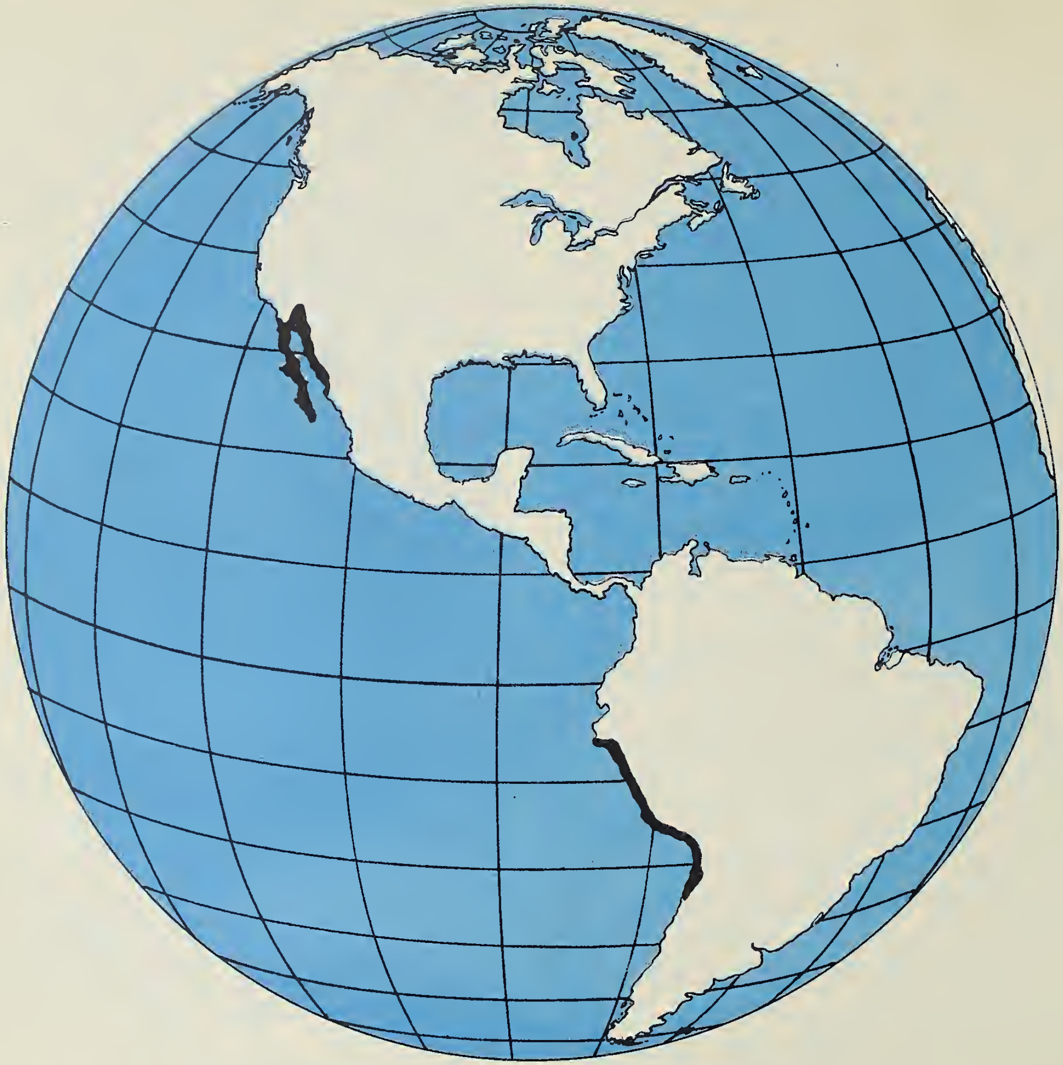
If you buy dates in the store in your town you will see that they have come from any one of three places. The dates may have come from the Sahara in Africa. They may have come from the banks of the Tigris or of the Euphrates in Asia. Or they may have come from the desert near the Colorado River.

Gendreau

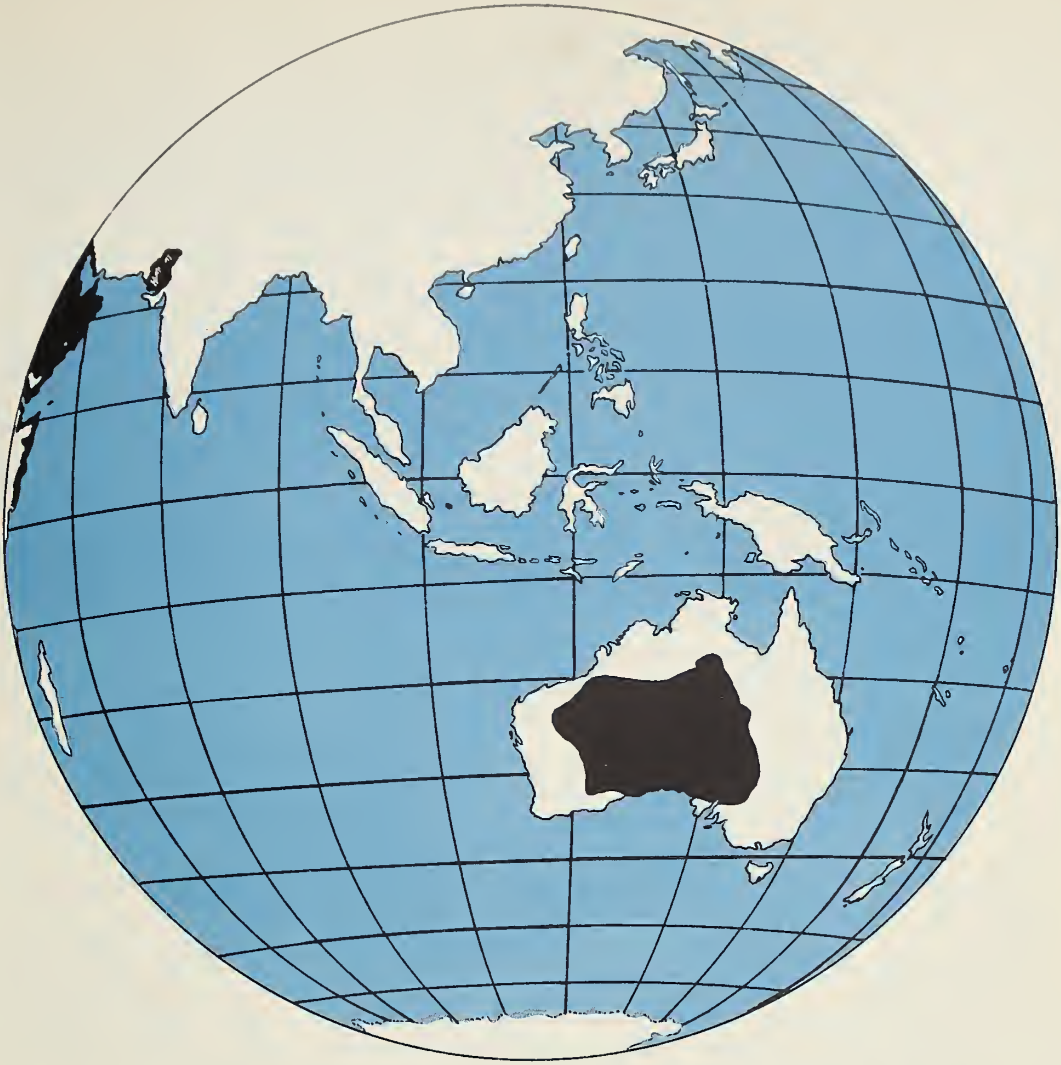
Date palms furnish other useful things besides dates. The trunk is used for building material. The stalks are made into rope or burned for fuel.

If we should go to each one of these deserts, we would find in each some of these things—piles of sand blowing with the wind, desert bushes, flocks browsing on the bushes, small oases where people irrigate fields of alfalfa and orchards of fruit trees.

1. What is the cause of the large oasis in North Africa?
2. How do the people make use of this oasis?
3. How do they use the smaller oases?



Compare the size of the desert land areas in North and South America with the desert areas in Africa. Compare the location of American deserts with the location of the Australian desert.



There are deserts on all the continents except Europe. In the middle of Australia there are large areas of dry land on which few people can live. Here men follow their flocks in search of food.

Australian News and Information Bureau

Keystone View Co.

The Nile River flows through Egypt. Its water is used for irrigation. Where there is more water, more food can be grown. This means more people can live together in cities and towns like this one.

Some Things to Do

1. Add the names of these places to your list of geographical terms. Learn to write their names.

Sahara Desert
Nile River
Egypt
Arabian Desert
Tigris River
Euphrates River
Indus River
Colorado River

2. Write the names of five rivers that provide water for oases. Locate the rivers on a globe or a map. Then write the name of the continent to which each river belongs.

3. Discuss these questions with your classmates—

a. Why does the desert automobile have more than four wheels?
b. Why are the floods of the Nile helpful instead of destructive like most river floods?
c. In what way are the large oases in Africa and Asia alike?

A Short Quiz

The following sentences about desert lands need some words to complete them. Copy the sentences and fill the blanks.

1. We say the largest desert in the world is divided into two parts by the Red Sea. The part of this desert in Africa is called the ______, and the part on the other side of the Red Sea is called the ______ Desert.
2. The largest oasis in Africa is formed by the ______.
3. It is easy for rivers to flow from high ______ across ______ to the sea.
4. The ______ trees in the large North American oasis get water from the ______ River.

Stories You Will Enjoy

Desert Neighbors by Edith Marion Patch and Carroll Lane Fenton—Macmillan

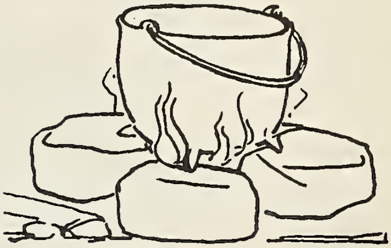
Amazing Adventures of Ali by Maud Lindsay —Lothrop

Our Little Friends of the Arabian Desert, Adi and Hamda by Frances Carpenter—American Book Company

Lance of Kanana by Henry Willard French—Lothrop

Land of the Russian People by Alexander I. Nazaroff—Lippincott

Palestine and Syria by Louisa Maud Mohr; edited by Carleton Washburne and W. W. Beatty—Rand



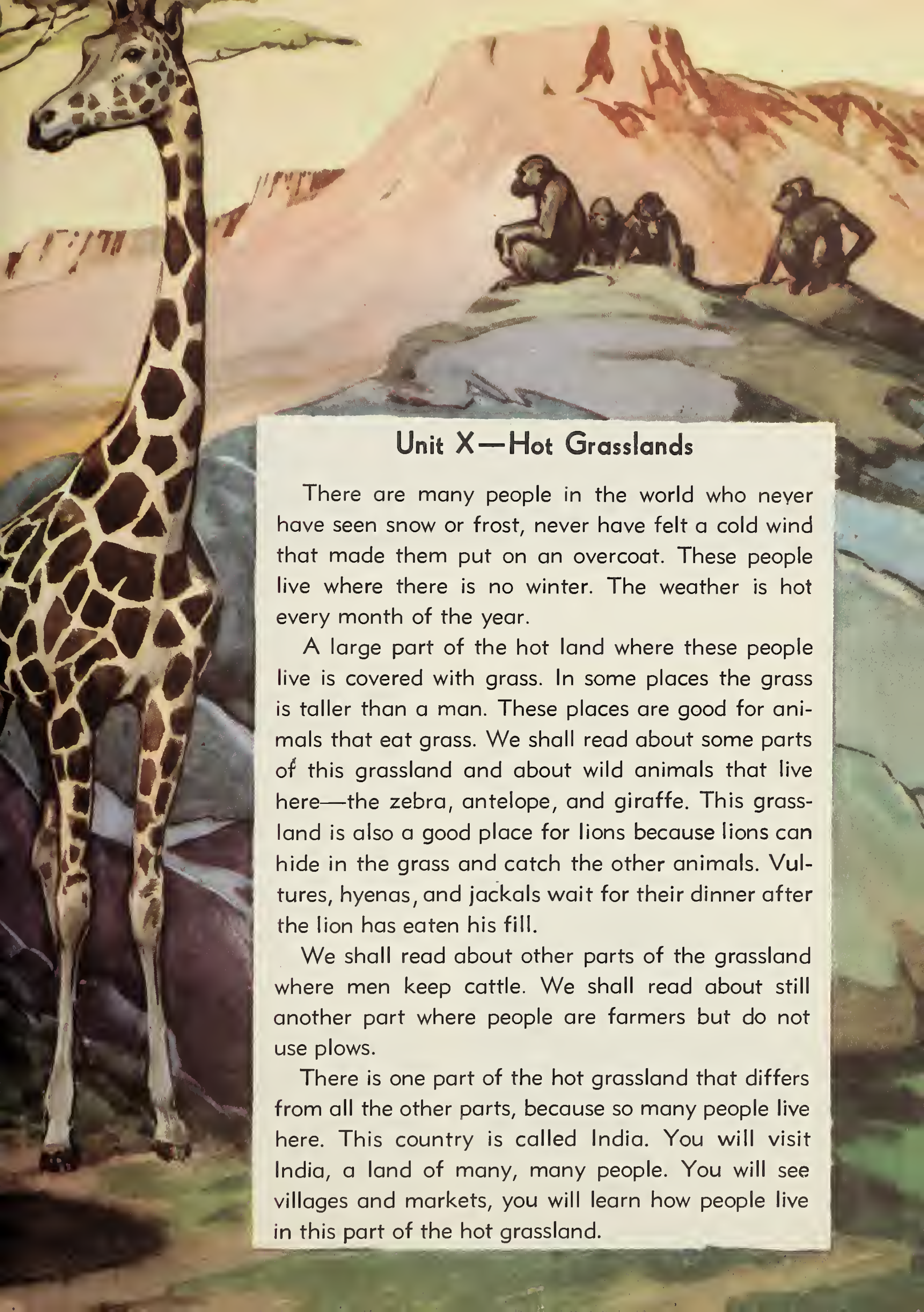
A Summary

1. Write a sentence for each of the following items to connect it with desert lands and peoples around the world.

- a. goatskin bag
- b. sheik
- c. oasis
- d. date palm
- e. camel
- f. buttermilk cakes
- g. sandstorm
- h. cooking stones
- i. quern
- j. caravan
- k. Saraha
- l. The Nile

2. Think about these questions on living in desert lands. Write the best answer you can to each question. Discuss the answers with your classmates.

- a. In Unit VIII you read about cool grasslands around the world. What are the most important differences between cool grasslands and desert lands?
- b. Why do desert people keep camels, goats, sheep, and donkeys?
- c. What does the clothing of the Arabs tell you about weather in the desert?
- d. Why is the food of nomads different from the food of oasis people?
- e. Why are there many small oases, but few large oases?
- f. How do you think a caravan leader finds his way from one oasis to another?



Unit X—Hot Grasslands

There are many people in the world who never have seen snow or frost, never have felt a cold wind that made them put on an overcoat. These people live where there is no winter. The weather is hot every month of the year.

A large part of the hot land where these people live is covered with grass. In some places the grass is taller than a man. These places are good for animals that eat grass. We shall read about some parts of this grassland and about wild animals that live here—the zebra, antelope, and giraffe. This grassland is also a good place for lions because lions can hide in the grass and catch the other animals. Vultures, hyenas, and jackals wait for their dinner after the lion has eaten his fill.

We shall read about other parts of the grassland where men keep cattle. We shall read about still another part where people are farmers but do not use plows.

There is one part of the hot grassland that differs from all the other parts, because so many people live here. This country is called India. You will visit India, a land of many, many people. You will see villages and markets, you will learn how people live in this part of the hot grassland.

British Information Services

Chapter 24

Grasslands in Africa and South America

Flying Over Africa

Suppose we take an airplane journey across Africa. Our trip begins at the city of Tripoli, on the northern coast of Africa. Tripoli is in the desert's edge country. Ali and his people live in this kind of country. Our trip will be finished when we reach the city of Cape Town, at the southern end of Africa.

Soon after the plane has left Tripoli, we see a group of ten black tents. They are the homes of people who live as Ali lives. Through our field glasses we see flocks of sheep and some camels near the tents. In a little while we are flying over the Sahara Desert. Great piles of sand lie below us. Sand, sand, sand—we are flying over sand, hundreds of miles of sand!

"But what is that black spot just ahead?" we ask the guide.

"That is an oasis," he tells us. We see many palm trees on the oasis. Their leaves make the oasis seem almost black as we look down upon it.

We see the village of the oasis people, and close beside the village are the oasis gardens. This makes us think of our visit to the oasis in the Arabian desert.

"Look!" exclaims the guide and he points to a string of camels. There they go, fifty camels walking slowly one behind the other. The guide says the caravan will stop at the oasis we have just passed.

For several hours the plane flies over the desert. Then we see a few bushes here and there in the sand. As we go farther south, bushes are closer together and there is a bit of green color on the ground. It is grass. As we go on, we see more grass. Now we are flying over grassland that lies to the south of the Sahara Desert.

We see small villages of houses with grass roofs. We see the brown earth of gardens near the villages and some streams of water with trees growing along their banks.

"Elephants!" someone shouts and points to a stream of water.

There they are, a dozen wild elephants bathing in the stream. The noise of our plane scares them and they run. This grassland is the home of many animals that eat grass.

Now we fly over a patch of forest. It must be about as large as the Jenkins farm. Then there is a patch of grassland again. This country is mixed—grass here and forest there.

We have left the grassland now. We are flying over forest—Congo forest. It is called the Congo forest because the Congo River runs through it. The Congo forest lies near the Equator, the imaginary line around the middle of the earth. Sam saw the Equator on the globe in Greenland.

On we go over the dark, green forest. The pilot flies lower as we cross the Congo River. The pilot circles and lands on an airfield beside a wide river. A steamboat throws black smoke from her smokestack, as she goes on her journey up the river.

In flying from Tripoli to the Congo River, we have seen three kinds of land —the desert, the grassland, and the forest. These three make up the greater part of Africa. Why is some of Africa desert, some forest, and some grassland? It is all because of rain.

The forest is forest because it rains there every month in the year. Trees can grow where there is rain every month.

The desert is desert because there is so little rain that almost nothing can grow there.

The grassland is grassland because it has both a rainy season and a dry season.

In the rainy season it may rain every day for several weeks. Water seems to be running everywhere. Then there may be several weeks when it rains, not every day, but quite often, as it does on the Jenkins farm in the Corn Belt. The grass grows very fast in the warm rains and the hot sunshine. In some places the grass grows 6 feet, even 10 feet high, in a few weeks.

Then the rain stops. There is not a drop of rain for months. The air is very hot and very dry. The grass dies. Most of the streams dry up. The rainy season is also hot, but the air is very damp.

Near the edge of the desert the rainy season is short. Not enough rain comes

Groups of houses like these can be found in little man-made clearings all over the jungle regions.

Phila. Commercial Museum

to cause much grass to grow. People cannot grow crops there. They live by following flocks as Ali's people do.

Near the edge of the forest the rainy season is longer and the grass grows tall. People can grow crops there, and there are many villages of farmers.

We wonder what animals live in this grassland with the rainy season and the dry season. We also wonder how the people of the grassland make their living.

1. On a globe or flat map find two cities, Tripoli and Cape Town. With your finger trace the airplane journey from one to the other. Make a list of five things you would see from the plane.
2. Explain in your own words the reason for land being desert, forest, or grassland.

Grassland Animals

Cows and horses and sheep eat grass. Grass is also the food of the zebra and the antelope, and of many other animals that make us think of deer or goats. Great herds of these animals live in some parts of the African grasslands. Sometimes travelers in Africa see thousands of these animals in a single herd. The giraffe also lives here. His long neck makes it easy for him to eat the leaves from the trees which grow along the streams.

These grass-eating animals have a much easier time in the rainy season than they do in the dry season. In the rainy season the grass is fresh and tender and there is water everywhere.

In the dry season the grass is dry and tough. There is not much of it left. Most of the streams are dry. In the larger streams there may be pools of water here and there. But in most places there is only dry sand in the bottom of the stream. The animals have to hunt the water holes. Sometimes they must dig in the sand to get water.

In the dry season many animals come to the water holes to drink. The ground is bare because the animals have eaten all the grass near the water hole.

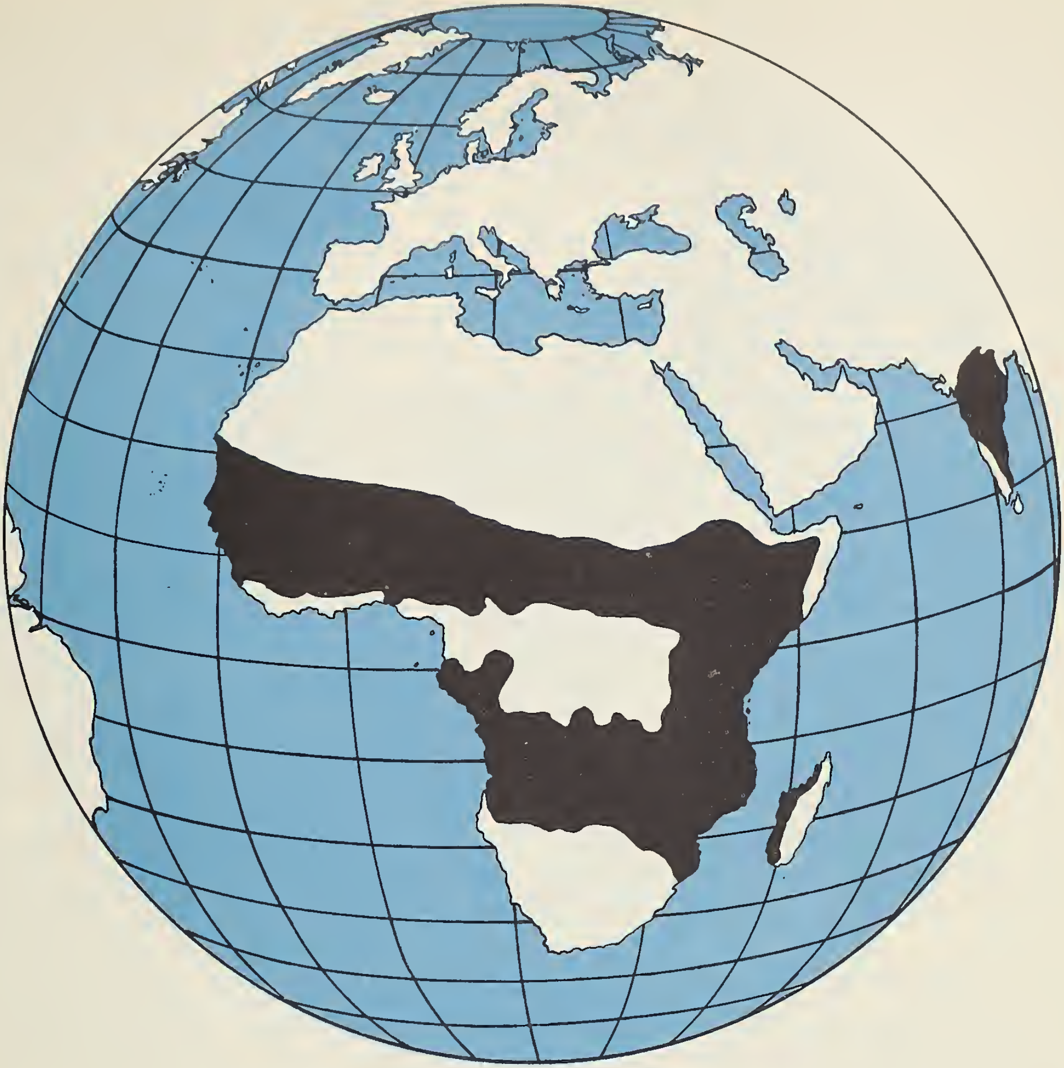
When the animals come to the water hole the hunters have a good chance to get them. This is also a good chance for the person who wants to take pictures of living animals. One who wants to do that goes to the water hole and makes a shelter out of branches of trees with the leaves on them. Here he hides and waits for the animals to come to drink water. Then he tries to get pictures of them.

The grasslands always have two kinds of animals—the grass-eaters and the meat-eaters.

The lion is a meat-eater, and he lives in the African grasslands. When the lion gets hungry he goes hunting. When he sees a grass-eating animal a long way off he creeps through the tall grass. He keeps his head and body low so that the grass-eater cannot see him coming. When the lion gets near the animal he is hunting, he lies down in the grass. He keeps as still as a stone. The grass-eater comes along nibbling grass. He does not know the lion is waiting for him. Jump! The lion springs out of the grass. He kills the antelope or the zebra with one stroke of his terrible paw. Lions are very fond of zebra meat. Wherever the zebra runs wild, there the lion also is to be found.

Big birds called vultures, flying far overhead, see the lions eating zebra. They often have seen them eating. They know that meat will be left when the lions have finished.

One by one the vultures drop down near the lions. They stand near, watching and waiting. The vultures know



Lions and grass-eating animals live in parts of the African continent. These areas have both a rainy season and a dry season. What kind of land lies to the north of each area of grassland?

Hoefler from "Africa Speaks"

better than to come too near the lions. They know what a lion's paw will do.

At last the lions cannot eat another bite. They walk away through the grass, and the vultures begin to eat what is left.

While the vultures are eating, the hyena and the jackal have smelled fresh meat. They come to see if the vultures will leave something for them. The hyena likes to eat dead animals. The jackal has such very strong jaws that he can chew up even bones and eat them. You often have seen your dog do the same thing.

That is the wild life of the grasslands. The grass-eaters eat grass, and meat-eaters catch the grass-eaters for food.

There are hot grasslands in Africa, in South America, and in Asia. The one in Asia covers much of the country called India.

In India the tiger is the chief of the meat-eating animals. In South America it is the panther, or puma, as it is often called.

We have learned how the animals get their living in the hot grasslands. Men also make their living in this land of tall grass. They depend on grass or grass-like plants, just as the grass-eating animals do. But men use these plants in different ways.

1. Name three grass-eating animals and five meat-eating animals that live in the hot grasslands in Africa, South America, and Asia.
2. In what two ways is the dry season an unhappy time for the animals?

Farming in the Grasslands

There are no people living in some parts of the hot grasslands of Africa. Only wild animals live there.

In other parts there are people who are both farmers and cattle-keepers. These people are Negroes. They have been in Africa for a very long time. They have a happy time in the grasslands if there is rain enough to let their crops grow well.

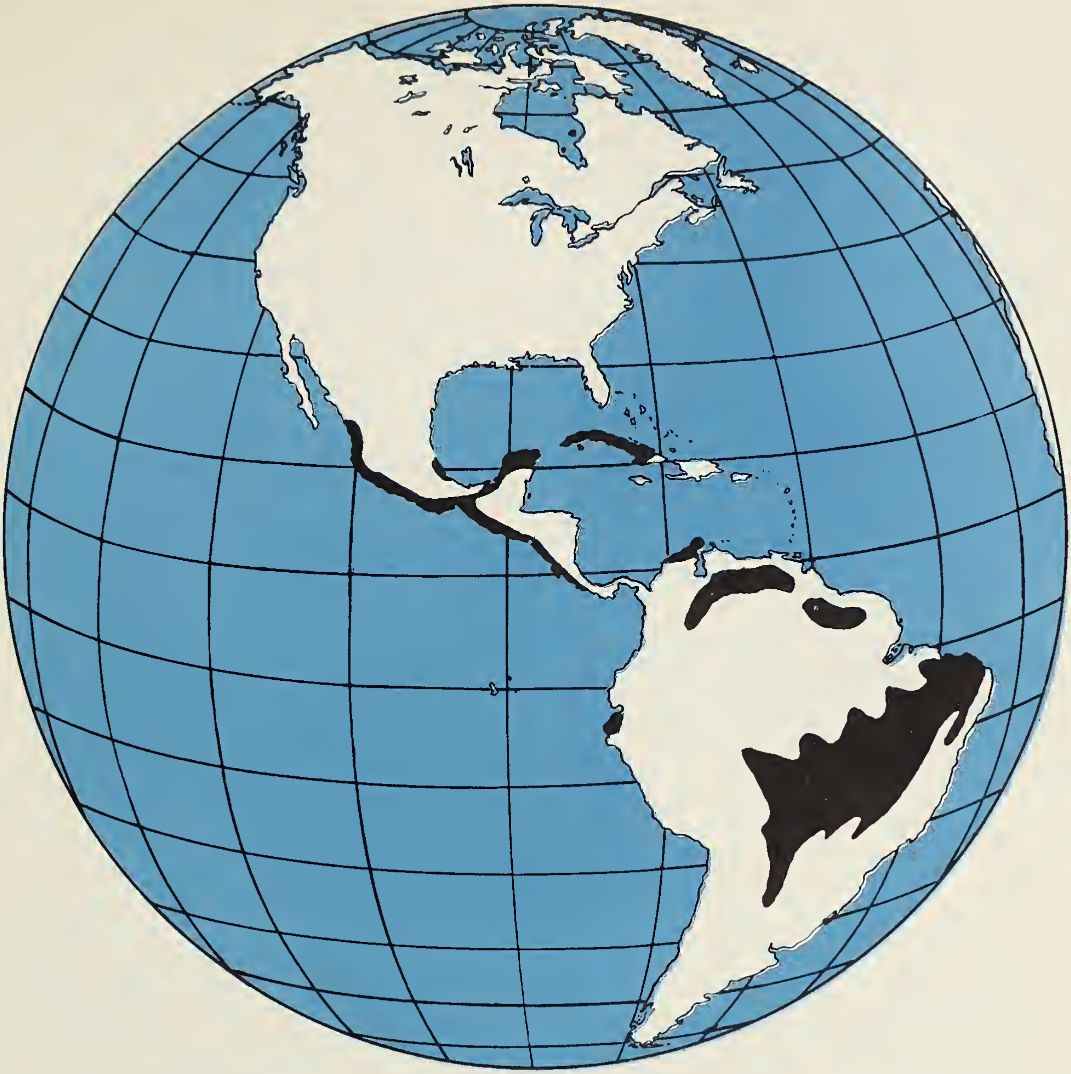
You remember that Mr. Jenkins grows crops and gives them to his animals. As we have already said, the animals find food for themselves in the African grassland. They eat grass all the year round.

Instead of feeding crops to animals, these African farmers eat the food they grow in their gardens. The gardens take up only a little space. Most of their land is left as pasture for their animals. A whole village has less land in crops than the Jenkins family has. These garden-farmers have no tractor, no horse, not even an ox. They keep cattle but do not make the cattle work as Mr. Ling does. There are no plows.

Near the end of the dry season the villager chooses a place for his garden and burns all of the dry grass there. Then he waits for the rains to begin. As soon as rain softens the hard, dry earth, he hurries to make a garden. With a big hoe he digs up the tough grass roots and turns them upside down so that the grass will not grow. Then he plants the seed as soon as he can. He wants his garden to start growing quickly. There is no time to waste. He never can be sure just what the rainy season will be like. It might be short and not make a good crop. Sometimes there are terrible droughts.

The grassland gardeners grow tomatoes, sweet potatoes, peppers, many kinds of beans, and other vegetables. They are very fond of pumpkins of which they grow a great many.

For hundreds of years these people have grown sorghum. You remember



In the Western Hemisphere the hot grasslands are located in Central and South America. These parts of the world's grasslands have large cattle ranches. Why are there no hot grasslands in North America?

Argentine Embassy

Gendreau

A housewife of Africa is grinding grain for dinner. It takes long hours of hard work to produce even a little meal in this way. Notice the woman's bracelets—they show her family's wealth.

that sorghum is a kind of corn. Some of the Africans now grow our kind of corn, too. People from our country took the seed to Africa. The people there are very glad to grow corn. They also grow millet.

Corn and sorghum and millet are very much at home in the grasslands. This is because they are all members of the grass family. These three crops give the Africans their bread food.

After the dry season begins, the grain is very dry. The garden-farmers store the grain in something that looks like a barrel made of clay. To make this grain barrel, they mix stiff clay with chopped-up grass. Then they build the barrel up slowly with the clay. Clay gets very hard if it is kept dry. Mice cannot gnaw through a barrel of clay. The grain is put into the barrel through a small hole in the top. Then the hole is closed with a flat plate of dry clay. When flour for bread is needed, they take a little grain from the clay barrel and crush it fine in a mortar.

Sometimes there is not enough rain to make a good crop and the people may go hungry. Sometimes there is worse trouble than that. The locusts may come. Locusts are insects that look much like grasshoppers, but they can fly. Sometimes locusts come quickly. There may be so many that they make the sky as dark as though there were heavy clouds overhead. In a single day a swarm of locusts may come to a village and eat every blade of grass. They eat every stalk of corn or millet, and every garden plant. Then they go away, leaving the earth bare. The people then have nothing except what they may have stored in their grain barrels of clay.

These African garden-farmers have one other important garden crop—the peanut. It is said that we got our first peanut seeds from Africa. The Africans crush peanuts in a mortar and boil them in a pot. The oil comes to the surface of the water and they skim it off. This makes a good cooking oil and is very useful for food.

These Africans are cattle-keepers as well as garden-farmers. They get milk and butter and some meat from the cattle that pasture on most of their land. They love their cattle. A man who has fifty cattle will have a name for every one. He knows each one when he sees it. All the cattle would look alike to us, but they are his cattle and he knows them and loves them.

We ask who is the "big man" in the African village? We are told that it is the man who has the most cattle. When these people meet each other they do not say, "Good morning," as we do. They say, "I wish you many cattle."

You may have heard it said that someone was "born with a silver spoon in his mouth." That is one way of saying that a boy or girl was born into a family of rich people. But if these cattle-keeping villagers wish to say that, they will tell you that "So-and-so was born with five fingers in the butter."

The lion is always on the watch for a chance to spring out of the grass and kill a cow or a calf. The villagers have to keep a sharp lookout for lions. They keep the cattle behind high bush fences at night. They watch them in the pastures by day. These people do not have guns. They carry long spears and shields of leather. They kill lions with the spears and protect themselves with the shields. There is one tribe in Africa in which a young man is not allowed to marry until he has killed a lion with his spear.

Suppose we travel from west to east over the whole length of the African grassland north of the hot forest. Then suppose we cross from the Atlantic Ocean to the Indian Ocean, flying over the grassland that lies south of the hot forest.

In the grassland north of the Equator and in the grassland south of the Equator we see, from time to time, the same things. In both grasslands we see tall grass, also trees near streams. We see dark-skinned people living in villages of

Have you ever seen a zebra? This African striped horse is about 4 feet high, with long ears and a short mane. The lower part of the face is brown. Zebras stay in large herds and feed mostly at night, for then their striped bodies cannot be seen so easily by their enemy, the lion.

Keystone View Co.

small houses with grass roofs. We see them working in their little gardens where they are growing grain and vegetables. We see herds of cattle with long horns, and sometimes there are flocks of goats. In places where there are not many people, we may see zebras, antelopes, giraffes, and even lions.

1. Why can corn, millet, and sorghum be grown in the hot grasslands?
2. What two things does an African farmer fear?

South America's Grasslands

The hot grassland of South America is very large. It takes up a large part of Brazil, one of the countries of South America. If we went to Brazil, we would see the same kind of land we saw in Africa—open stretches of grass with trees and bushes along the streams.

In the grasslands of South America there are not many people. Some of them speak the Portuguese language. People from Portugal, a country on the west side of Europe, went to Brazil to make homes for themselves.

Most of the Portuguese in Brazil live near the seacoast. There they have cities, railways, and highways much as we do in the United States.

But it is very different in the grassland part of South America. Here you might ride on horseback for days and days, or even for several weeks, without seeing a railway, or a city, or a good highway. This is a land of cattle ranches. It might take you several hours, or even all day, to ride on your horse from one ranch house to the next one.

Many of the ranches here have no fences at all. The cattle are allowed to run free, but they are branded, or marked, so that each rancher may know his own animals. Once a year the men of many ranches drive all the cattle to one place. They call this a "round-up." This takes a month of hard work. This is the time when each man finds his own cattle. A rancher throws a rope and catches a calf. He pulls the calf out of the group of cattle. The calf's mother follows it. She was branded or marked when she was a calf. The mark shows whose cow she is. Her calf belongs to the cow's owner, too. A cowboy puts the same mark on the calf. After the round-up each year, some of the cattle are sent to market.

It is a long, long way from these ranches in the grassland to market. The markets are in the cities of Rio de Janeiro and Santos and in towns near the seacoast. The cattle have to walk for days and days. The cowboys who drive them sing a sad-sounding song called the "aboiado." They think the singing keeps the cattle quiet. Men who drive large herds of cattle are always afraid of a stampede among the cattle. A stampede is a strange thing. A thousand cattle may be lying quietly in the moonlight. Perhaps a rabbit scares one of them, and she jumps up and runs. All the other cattle may jump up and run wildly. Cattle in a stampede will run over people and over tents. They will break the branches off small trees and run until they can run no more. Then what a time the cowboys have to find their cattle again! Sometimes they never find all of them.

You remember that thin cattle from American ranches go to the Jenkins farm and other farms in the Corn Belt to be fattened. It is the same in Brazil. The cattle from the grasslands get fat by spending a few months on farms near Santos and Rio de Janeiro. The grass is better there and some corn is grown.

Triangle

Vacceiros, the cowboys of Brazil, take cattle after the round-up to farms for fattening. The animals will eat good grass and corn and then go on to market. Notice their long, pointed horns.

1. On a globe or a map locate the hot grassland of South America.

2. In what part of the United States do we have cattle ranches?

Some Things to Do

1. If you do not understand the meanings of these words, look for them in your dictionary.

drought stampede vulture

2. Collect pictures for your scrapbook of animals that live in the hot grasslands.

3. Tell how farming in the grasslands is different from farming in the Nile Valley.

4. Model from clay or carve from soap a meat-eating or a grass-eating animal. Use the models to make a sandtable scene showing animals at a waterhole.

5. If you have visited a zoo, tell the class about the animals you saw there which were brought from the hot grasslands.

6. Here is a list of foods that are grown in gardens in Africa. Some of these foods are grown in our own country. Copy the list and place a check mark, (√), with the foods you would find in gardens near your home.

tomatoes
peppers
beans
sorghum
millet
peanuts
pumpkins
yams
rice
sweet potatoes

A Short Quiz

Some of these sentences about the hot grasslands are true. Some of them are not true. Copy the true statements and change the others to make them true before you write them.

1. The rainy season near the edge of the desert is long.
2. There are villages of farmers near the edge of the forest.
3. African farmers grow crops to feed their animals.
4. During the dry season the wind blows from the desert.
5. Open stretches of grass with trees and bushes along the streams are found in the cotton-growing lands.

Gendreau

Chapter 25

A Visit to India's Grasslands

A Village in India

The life of people in the grassland of India is very different from the life of people in the grasslands of Africa and of South America. The grassland in the three continents is very much alike. The plants that grow on the grasslands are alike, too. But the people of India live differently because there are so many of them.

Many, many more people live in India than in all the other hot grasslands in all the other continents. All of these people must eat. To get food, the people of India must use most of their land to grow food for themselves. In Brazil the grassland is used to grow food for cattle.

Let us visit some people who live in the grassland of India.

We leave the train at a small railway station. Dumbir, the son of the farmer we are going to visit, meets us there. Dumbir speaks English, as many of the people of India do. With this lad as guide, we walk a mile to the village.

It is April now and near the end of the dry season. There has been no rain for several months. As we walk slowly in the heat, our feet kick up a cloud of dust.

We see only bare, dry fields, and more fields, and still more fields. The earth of the fields is so dry that the ground has cracked open in some places. Some of the cracks are as wide as a finger.

This part of India once was covered with grass, like the grasslands of Africa and Brazil. But we do not see much grass now. The people have had to plow more of their grassland and plant crops there. This had to be done to get more food for more people.

"Soon rain will come," says Dumbir. "My people are waiting and watching for rain."

The village is brown like the fields. The houses are made of the brown earth. They are called "mud houses." Brown, dried grass makes the roof of each little mud house.

The houses stand close together. Between them is just space enough for a cow to walk.

There are no yards in front of the houses. But there is a little porch. The floor of the porch is made of clay, packed hard. A little roof over the porch gives a bit of shade from the sun. The people often work there.

The village tailor is at work on his porch as we pass.

"The tailor's sewing machine came from the United States," says Dumbir with pride. "See, he works the treadle with his bare feet."

Between the tailor's house and the porch is a little place where the earth is beaten smooth and swept clean. Some red peppers are drying there. The tailor's wife will use the peppers to make the food taste better.

Dumbir shows us a large tree that stands beside the house of the village carpenter. The carpenter is working under the shade of the tree. Dumbir says that the carpenter is making a cart for one of the farmers. The wheels for the cart are very heavy.

We have to stand close to the carpenter's house to let a big cart pass by. It is drawn by two oxen, or bullocks, as they are called in India. The cart has a big load of straw. The people have eaten the grain and now the bullocks will eat the straw.

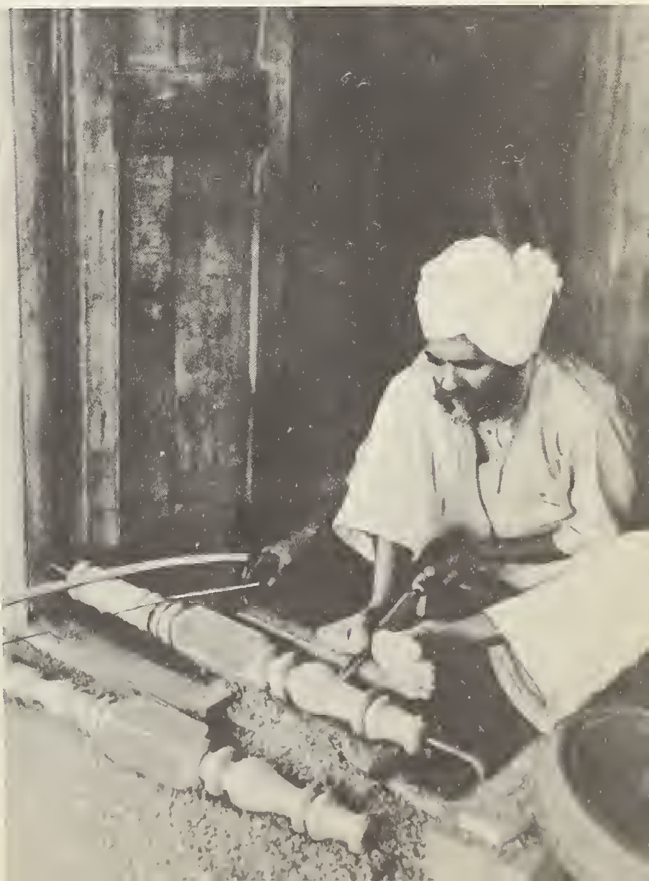
Dumbir leads us to his house. His father, whose name is Dhuni, and his mother greet us very politely. Talu, their ten-year-old daughter, gives us fans with which to cool ourselves. Dumbir brings a cot to the porch for us to sit upon and cool water for us to drink. We are glad to rest.

Their house is one room. The floor is made of pounded earth. A covering of smooth mud was laid on top of the pounded earth and left to dry. The floor is smooth and as good as any other kind of floor. The houses are all rather dark inside. There isn't even one window in the village. Light comes in through the open door. The roof of the house is made of small bundles of straw. Each bundle is tied to the poles that hold the roof.

There is only one piece of furniture in the room—a big box. The box is made

An Indian carpenter makes his own wood lathe. He loops a bow string around the wood, holds the chisel with the right big toe and the left hand and guides it with the left foot. Moving the bow causes the wood to turn against the chisel.

Triangle



of clay mixed with a little straw. The clay seems almost as hard as wood. The family keeps its millet in the clay box. Millet is a grain used for making bread. The millet is put into the box through a small hole in the top. It can be taken out by a small hole at the bottom. The two holes are closed with wood so that no mouse or rat can get the millet. These people must see that not a grain of anything is wasted. It is very hard to get enough food for so many people.

Dumbir leads us to a little yard or court at the back of the house. There is a high wall of mud around the court. In one corner of the court is a smaller room. Part of the space between the two rooms is covered with a roof of grass. Food for the family is cooked in the open space under the roof.

Back of the courtyard is a yard for the cattle. The animals enter their yard by a path between the houses. Every animal knows the doorway to its own yard.

Four or five tall earthen jars for holding water stand in the courtyard, near the cooking place. There are no pipes for carrying water anywhere in the village. Pipes cost more money than these people have to spend. The women carry water in the earthen jars from the well to their homes. This work is done in the cool of the morning and in the cool of the evening.

Dumbir takes us to an open space beyond the village to show us the well. The well is used by the village families. The well is only a deep hole in the ground with a wall of bricks lining the inside to keep dirt from falling into the water.

A group of village women has come to the well. Each woman carries a large water jar. The women place their jars on the ground beside the well. All take turns in drawing water. A woman picks up a leather bucket that is fastened to a rope. She lets the bucket down into the well and draws it up full of water. She pours the water from the bucket into her jar. Then another woman draws water, and another, and another. When all have filled their jars, the women put them on their heads and walk back to the village.

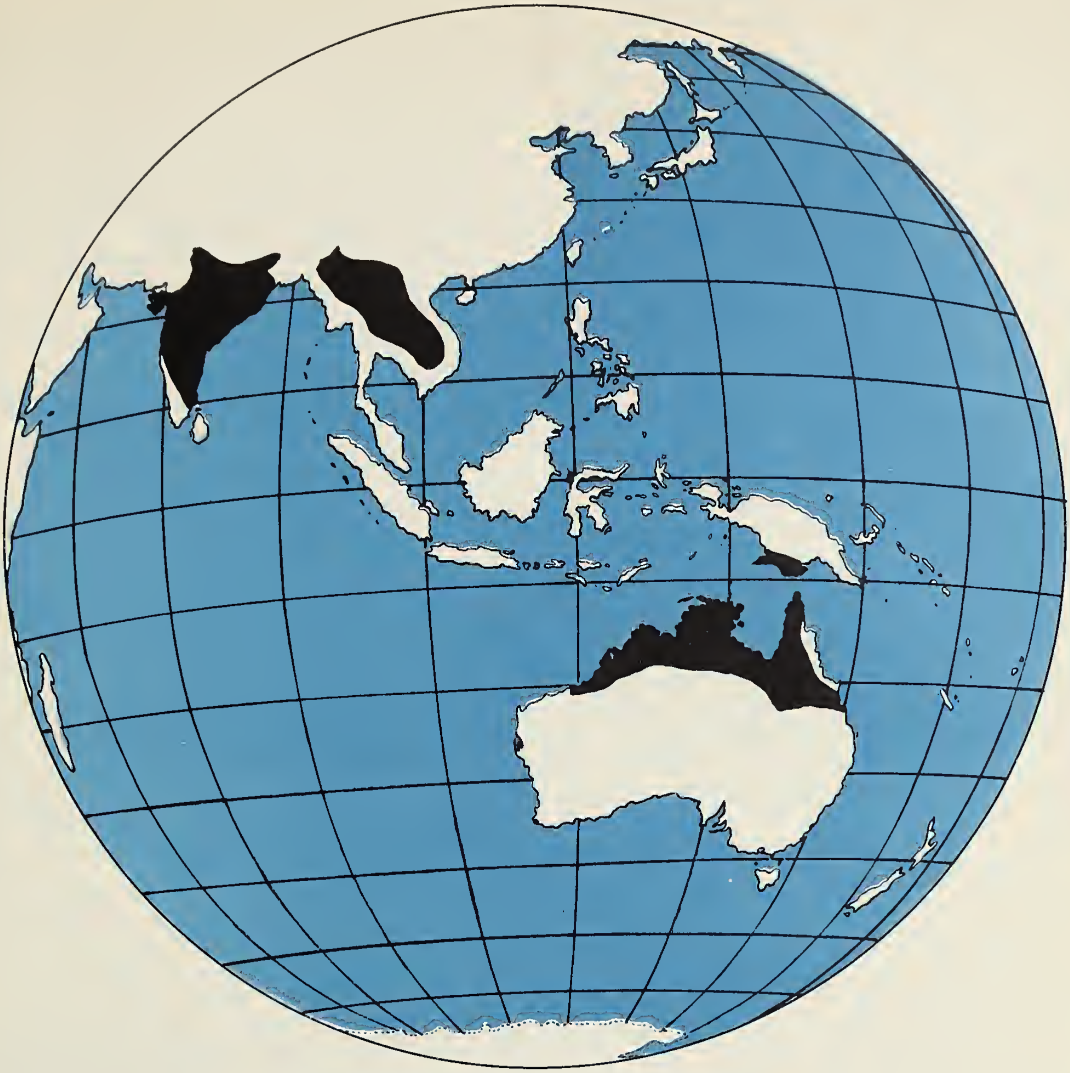
All of these women wear jewelry. We are surprised to see silver bracelets on their arms and large silver rings, called anklets, on their ankles. As the women walk, their bracelets and anklets make a soft sound like the sound of little bells. If her family has money to spare, a woman may wear many bracelets and many anklets. She may even have rings on her toes and anklets of gold.

We ask Dumbir why the women wear jewelry when they carry water from the well.

"They wear it all the time," he replies, "even at night. There is no other safe place for jewelry. If they left it at home when they go out, someone might step into the house by the back door and take some of it. We do not lock our houses."

The gold and silver jewelry on the women's arms and ankles is a kind of savings bank. If a woman gets some money, she does not put it in a bank for safekeeping as your mother might do. Instead she buys another ring or another bracelet or another anklet. If the family has to have some money, the woman may sell a piece of jewelry.

"If an Indian woman has no anklets or bracelets or rings," says Dumbir, "she feels very sad. Every woman wants to leave bracelets and anklets and rings for her daughters."



Name the countries in the Eastern Hemisphere that have areas of hot grasslands. The grassland areas in Africa, South America, and Asia are very much alike. Why do these people live so differently?

Triangle

Keystone View Co.

In India water often must be carried to the village from a well, stream, or lake. Water carriers make their living by collecting water and selling it throughout the town or city.

1. What is the reason for the difference in the life of the people in the grassland of Asia from that of the people in South American and African grasslands?
2. Why are the houses so close together in a a village in India?
3. Explain why the people of India exchange their money for jewelry.

Evening in the Village

As the women leave the well, we follow Dumbir to the tank. The tank, or pond, is in another open space beyond the village. In the dry season the cattle spend most of the day at the tank.

Long, long ago, the people of the village built a high dam of earth across a small stream. The dam keeps the water of the stream from running away. In the rainy season, much water is stored behind the dam. This makes what these people call a tank. It is very much like the tanks on the Moss ranch, only larger.

Even in the dry season some water stays in the tank. The animals go to the tank to drink. The people bathe there. Clothes are washed in the tank. Tanks are very important indeed to people who live where there is a dry season for a large part of the year.

As we come near, we hear shouts and laughter and the sound of splashing water. The boys are having a good swim before they take the animals back to the village.

Dumbir points to some big animals that lie in the water with only their noses and eyes sticking out.

"The water buffaloes," he tells us, "spend most of the day in the tank. Water buffaloes are always in the tank when they are not at work. It is cooler in the water and, besides, the flies cannot bother them there."

The animals are in no hurry to leave the water. We see some cattle with humps on their shoulders standing in the tank. They are not like Mr. Jenkins' cattle.

We see two men carrying water from the tank. They pour the water on a pile of earth. We ask Dumbir what the men are doing.

"They are making a house," he replies. "See how they mix the earth and water together. Then they tramp on it with their bare feet. When the mud is thick and stiff, the men will build a house with it. They will put a thick layer of the mud on the ground where they want the walls of the house to be. The sun will dry the mud. Then the men will put another layer on top, and another, until the house is finished. A man can make a house like this in a week or two. For tools he needs only his two hands and a shovel or a flat piece of wood for smoothing the mud."

It is almost sunset now. The boys drive the cattle and the buffaloes to the village. Each animal knows its home and turns into the right path between the houses. The people who own them open the back gate and the animals come into the yard. Here they milk the water buffaloes and the cows. The animals spend the night in the yard.

When the women have finished milking, they cook a little food for the evening meal. They have rice and beans, seasoned with peppers and spices. The stove for cooking is made of two little banks of clay about eight inches high. A fire is made between the banks. A piece of sheet iron lies across the two banks of clay and an iron pot is set on top of the sheet iron. There is no chimney. The smoke finds its own way out of the courtyard.

Talu, Dumbir's sister, shows us the stone mill for grinding grain.

"Mother and I grind wheat and millet in this mill," she says. "We make bread of the flour."

Talu also shows us a large clay box that holds rice. A big wooden pestle, or beating stick, stands near the box. The pestle is used for getting the rice from its husk, or outer covering, before the rice is cooked.

After we have eaten some food, Dumbir takes us to the house of the silversmith. A silversmith is a man who makes jewelry and other things of silver. It is almost dark now, but the silversmith is still at work on the porch of his house.

"Look!" says Dumbir, "the man is holding something between his toes as he works at it with both hands." People who never wear shoes can use their toes almost as well as other people use their fingers. Dumbir says that very many

In some parts of the world there is a custom of going to the village well for water and taking it home in a jar balanced on the head.

Triangle

men in the village hold their tools with their toes.

The silversmith greets us, and then he goes on tapping a piece of silver with a small hammer. He is making a silver anklet. Some new bracelets and rings lie beside him. They are for sale. We choose a few pieces of jewelry as gifts for friends in America.

1. Why have the village people built a tank?
2. Tell how a mud house is made.
3. If you lived here would you make your house of mud? Why?

The Rainy Season and the Harvest

Everyone is talking about the weather. How soon will rain come? Has anyone seen a cloud in the sky today? Rain! Rain! Everyone thinks about rain. Everyone talks about rain. Everyone prays for rain.

"Dumbir, do you see that cloud? We shall soon have rain!"

It is Dhuni, Dumbir's father, who is speaking. He looks at the dusty road and the dry fields. But he thinks about the vegetables he will soon plant in his garden. He is glad that the cattle can soon have fresh, tender, young grass to eat.

That night the people talk about rain and nothing but rain until they fall asleep. The next afternoon there is a shower. The following day there is another shower. Two days later, much rain falls. The dry season is ended!

Now comes the time when the bullocks must get to work. These people use bullocks to pull their plows. They do not use machines as Mr. Jenkins does.

When rain has made the earth soft enough to be plowed, all the men go to the fields early in the morning. Every bullock is at work. All the plows are going.

Dhuni's farm is in nine small fields. Each field is long and narrow. No two of the fields are close together.

"Why are the fields so far apart?" we ask Dumbir.

"It is the custom," says Dumbir, "for a farmer to have land in several places. In this way he can have a field in every kind of land. My father has a field in the lowland near the stream. This is very good land. He has a field farther from the stream, up a hill. This is not as good as the lowland field. One field has sandy soil. Another has clay soil."

"Why are there so many long, narrow fields?" we ask.

"My great-great-grandfather had four sons," replies Dumbir. "He divided each of his fields into four long, narrow fields. He gave one piece of each kind of land to each son. Later on, each son divided his fields and gave a piece of each kind of land to his sons."

Dhuni's best field is in the lowland below the tank and near the stream. He plants rice in his lowland field every rainy season. Rice needs plenty of water. Dhuni has dug a little ditch that brings water from the stream to the rice field. He can cover his rice plants with water as the Chinese do. Every family in the village wants to have a field of rice.

There is another reason why Dhuni is lucky to have this field. He can bring water to it through a ditch. He can do this even in the dry season. When Dhuni has harvested his rice, he plows the field and plants beans and peas where the rice was. He can irrigate them in the dry season. This gives fresh vegetables for the family and a little feed for the cow.

"Yes," says Dumbir, "this little field near the stream is very precious indeed. In the rainy season, it gives us rice, the grain we like best. In the dry season, it

India Information Services

The country of India is a great rice-producer. The planting and harvesting are done in the same way as in China. Here workers are planting rice shoots in the paddies.

gives us peas and beans and other vegetables."

These people do not eat meat, so they need plenty of peas and beans.

Only a small part of the land near the village can be irrigated to grow a crop in the dry season as well as a crop in the rainy season. Most of the land is not level, so the rain water runs off very quickly. On his upland fields Dhuni grows corn, millet, wheat, and a little cotton. These crops do not need so much water as rice needs.

Dumbir says that as soon as the crops begin to grow, the deer come from the woods along the stream. They go into the fields to eat the young corn and the young millet. The people try to scare the deer away.

From now until harvest the crops must be watched. The watcher sits on a platform held up by poles so that he can see over the tops of the corn and millet. There he sits and shouts and beats on a tin pan to frighten the deer. There usually is a grass roof over the platform to shade the watcher.

When the grain is almost ripe, the peacocks come and eat, and chattering monkeys come by hundreds. The watchers do the best they can, but peacocks fly, deer run quickly, and monkeys climb trees out of reach. The farmers have a very hard time indeed, trying to protect their crops. Often wild animals get a good deal of the crops.

Harvest comes at the end of the rainy season. When the rain stops, the crops

Gendreau

Men and women harvest millet, the wheat of India. The ripe head is cut off with a sickle and dropped into bags which the workers carry.

get dry. Dhuni picks his cotton and sells it for cash. He takes his grain to the village threshing floor. The threshing floor is a piece of ground outside the village. The ground is bare and the earth is packed firmly. All of the farmers take their grain crops here after harvest.

Dhuni spreads his millet out in this open space. He makes the bullocks walk around on the millet. Around and around they go, hour after hour, tramping on the stalks and heads of millet. When the bullocks have trodden the grain out, Dhuni takes a fork and throws the stalks and leaves to one side. Then he takes a shovel and throws the grain with the husks high up into the air. The grain, which is heavier, falls straight down to the floor. The lighter husk, or chaff, as we would call it, blows away in the wind. This is called winnowing.

When he has finished threshing and winnowing, Dhuni has a big pile of grain. But he cannot keep all of it as his own. He must give some bricks' weight of grain to the carpenter who made his cart. He must give some to the neighbor who helped him to plow. He must give some to the crop watcher, and some to the man who washes the family clothes at the tank. He also gives some grain to the barber who shaves him every week. He must give some to the neighbors who helped him harvest, and with some he must pay taxes.

The tax gatherer keeps a close watch on the threshing floor. If anyone has a good crop, the tax gatherer wants to be sure to get a share.

There is another man who watches the threshing floor as closely as the tax gatherer does. This man is the rent collector. He collects the rent from those villagers who have to rent land.

"How much does your father have left after he has paid all this?" we ask.

Gendreau

Farmers in India, as in China, must work very hard for a living. After the harvest the precious grain is stored for safe-keeping in boxes or in large jugs made of clay.

"That is always a hard question to answer," replies Dumbir. "In a year when the harvest is good, there is enough grain for food and some left to sell. That is very good luck. Some years there is not enough left for food for the family. Last year was a bad year. The cotton money had to be used to buy food. Even then there was not enough, so my father had to borrow ten dollars from the village money lender."

The money lender visits the threshing floor every day at harvest time. He goes to see who will pay him. He knows that Dhuni has a good crop. He knows also that Dhuni will pay the loan if he can. If he cannot pay his debts, his son, Dumbir, will pay them sometime. Even a grandson will pay the debts of his grandfather.

If Dhuni borrowed ten dollars last year, he will pay it back this year. But he must pay five dollars more. The extra five dollars is the interest he has to pay for the use of the money he borrowed. Sometimes the interest on ten dollars is as much as ten more dollars. The money lender is the richest man in the village.

In some villages the farmers get together and form a borrowing society. We call it a cooperative society. To cooperate means to work together. If Dhuni joins the cooperative society he will pay only a dollar and a half interest for borrowing ten dollars. This is because the people of the village have found a way of working together. The money lender will get enough, but not too much. The farmers will be able to borrow more often.

1. Explain why Dhuni's farm is in nine small fields.

2. Why is rice planted in the lowland field and wheat on the upland?

3. What do you think is Dhuni's "money crop"?

Keystone View Co.

A snake charmer plays the flute to several cobras, the most deadly of all poisonous snakes.

Market Day in the Village

Dhuni and his friends do not often go far beyond their own village, except perhaps on market day. Almost everything the people have is made in the community. Each village has its own skilled workmen who make the things the people need. There are the carpenter, the tailor, the silversmith, the maker of earthen jars. Each large village has its money lender, its barber, and its letter writer.

Some of the young men from the villages go to the cities to work in factories that make cotton cloth and other things. The village people buy some of the factory-made cloth for clothing. They also buy a little iron or other metal. Once in a while, people will visit a fair in a large town, but not often.

About five hundred persons live in Dumbir's village, but there is no store there. Once a week a market is held in an open place outside the village. Some people may come from other villages to trade. Everybody spreads his goods upon the ground and waits for someone to buy. All who sell fruit will be in one place, all the wheat sellers and all the millet sellers in another place. Somewhere else there will be those who sell sugar and salt and spices.

At another place in the market one may buy mustard-seed oil for cooking, rapeseed oil for the hair, linseed oil for cart wheels, and kerosene for lamps. Some things are sold by the bagful, other things are sold by weight. A man can buy one brick's weight of wheat, or one-half brick's weight of millet, or a silver rupee's weight of spice. A rupee is a silver coin worth about thirty-five cents in our money.

There is great fun when a band of traveling musicians comes to the market. They go from village to village, playing instruments which would seem very queer to us.

Perhaps on market day a man comes to the village with a pole resting across his shoulder. A basket tied with cloth is hanging from the end of the pole. People like to watch this man. He is a snake charmer. He steps to one side of the crowd and sets the covered basket on the ground. He sits beside the basket and raises a little wooden flute to his lips. Then he begins to blow upon the flute. It makes a low musical sound. Very carefully the man lifts the cover from the basket. Inside, coiled up, is a large snake. The snake lifts its head and crawls out of the basket. It coils on the ground as though it would strike. But the snake charmer is not afraid. He knows what to do. He keeps on playing his little flute. The snake watches him and swings its head from side to side. The man keeps on playing the flute. This lasts for several minutes. The people stand quietly watching the snake charmer and the snake. Then the man puts out his hand and lifts the snake back into the basket. The show is over.

Dumbir tells us that no one really knows how the snake charmer keeps the snake from biting him. Certainly a bite from that snake would kill the man.

Sometimes a man called a juggler throws sharp knives into the air. He catches the knives by the handles as they fall. He can keep three knives going at one time. There are very clever jugglers in India.

Another man comes to the market with a trained bear. The bear stands on its head, climbs a tree, and does other tricks.

The Indian people are very fond of seeing plays. Sometimes a band of actors comes to the village to give a play. These actors go from village to village. Sometimes half the people of a village walk 3 miles or more to another village to see a play.

Everywhere in the world fathers and mothers have always told stories to their children. We have seen how the Eskimos like to tell stories. The Indian people like stories, too. Every few days a storyteller comes to Dumbir's village. He sits down in the street and begins to talk. A crowd of people soon gathers. They listen to the stories for two or three hours. The storyteller can tell hundreds of interesting stories, and he can make up stories, too.

We ask Dumbir how the snake charmer, the actors, and the other performers make a living. He tells us to watch what happens. After they have amused the

Gendreau

Why do Indian women wear their jewelry all the time, even at night? The boy below is practicing his writing. Some children go to school for only a short time because they must work at home.

India Information Services

people on market day, the people give them little presents of food and other useful things. Sometimes they get a few coins.

There is a school in Dumbir's village. The children sit on the floor on grass mats. They write with chalk on wooden slates. They have to go home when they are needed to help their parents. The children of India have much work to do.

Only one person in twenty in this village can read or write. No one worries very much about that. If anyone wants to send a letter, he asks the village letter writer to write the message for him. The letter writer makes his living by writing letters for other people. We see him at the market. He is sitting on his heels, writing a letter. A man who sits beside him is telling him what to put in the letter. When the answer to the letter comes, the man will take it to the man who wrote the first letter. He will read the letter aloud and will get a little money as pay.

A man walks from village to village, carrying a few letters. He tries to get to each village on market day. That is the day when it is easy to find people.

We have talked about only one village in India. But this village is very much like other Indian villages. If we were to travel to the north from Dumbir's village, we would pass village after village. All would be very much like Dumbir's village. We would find it the same if we traveled east, or west, or south. There are thousands and thousands of villages in the great country of India. There are a few large cities in India, but most of the people live in these farm villages throughout the countryside.

1. Why do you think most of the people in India live in small villages instead of in large cities?

Some Things to Do

1. Suppose you were asked to give a talk about threshing in India and threshing in the Corn Belt of the United States. Make a list for each country of the things you would talk about.

2. Make a model from clay or from heavy paper of an Indian house. You will want to use dried grass for the roof. Study the pictures of these houses before you begin making your model.

3. Market day in the villages of India is a very exciting time. Write a letter to someone telling about the most interesting part of the market. Draw some pictures to go with your letter.

A Short Quiz

In Chapter 25 find a word or phrase that tells—

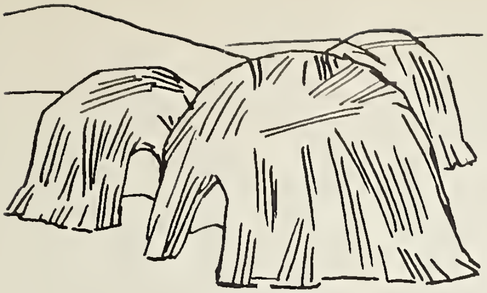
1. The language spoken by many of the people in India.
2. The month in which the dry season usually ends.
3. The material used to make the house roofs.
4. Animals used to pull carts and plows.
5. The grain, other than wheat, that these people use to make flour for bread.
6. Storage place for water to be used in the dry season.
7. The stick used to beat rice from its husk.
8. The man who makes bracelets and anklets.
9. The crop that needs much water to grow.
10. Separating husk or chaff from grain.
11. The richest man in the village.
12. A silver coin worth about thirty-five cents in our money.

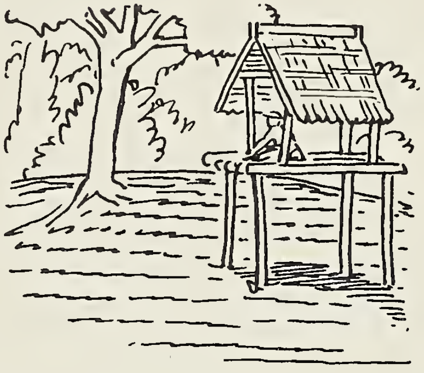
Stories You Will Enjoy

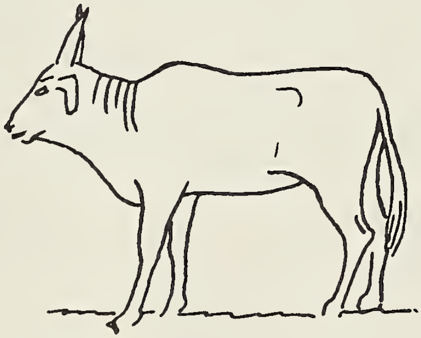
Totarum, the Story of a Village Boy in India by Mrs. Irene Mott Bose—Macmillan

India by Hilda Wierum Boulter—Holiday

Lions on the Hunt by Theodore J. Waldeck—Viking







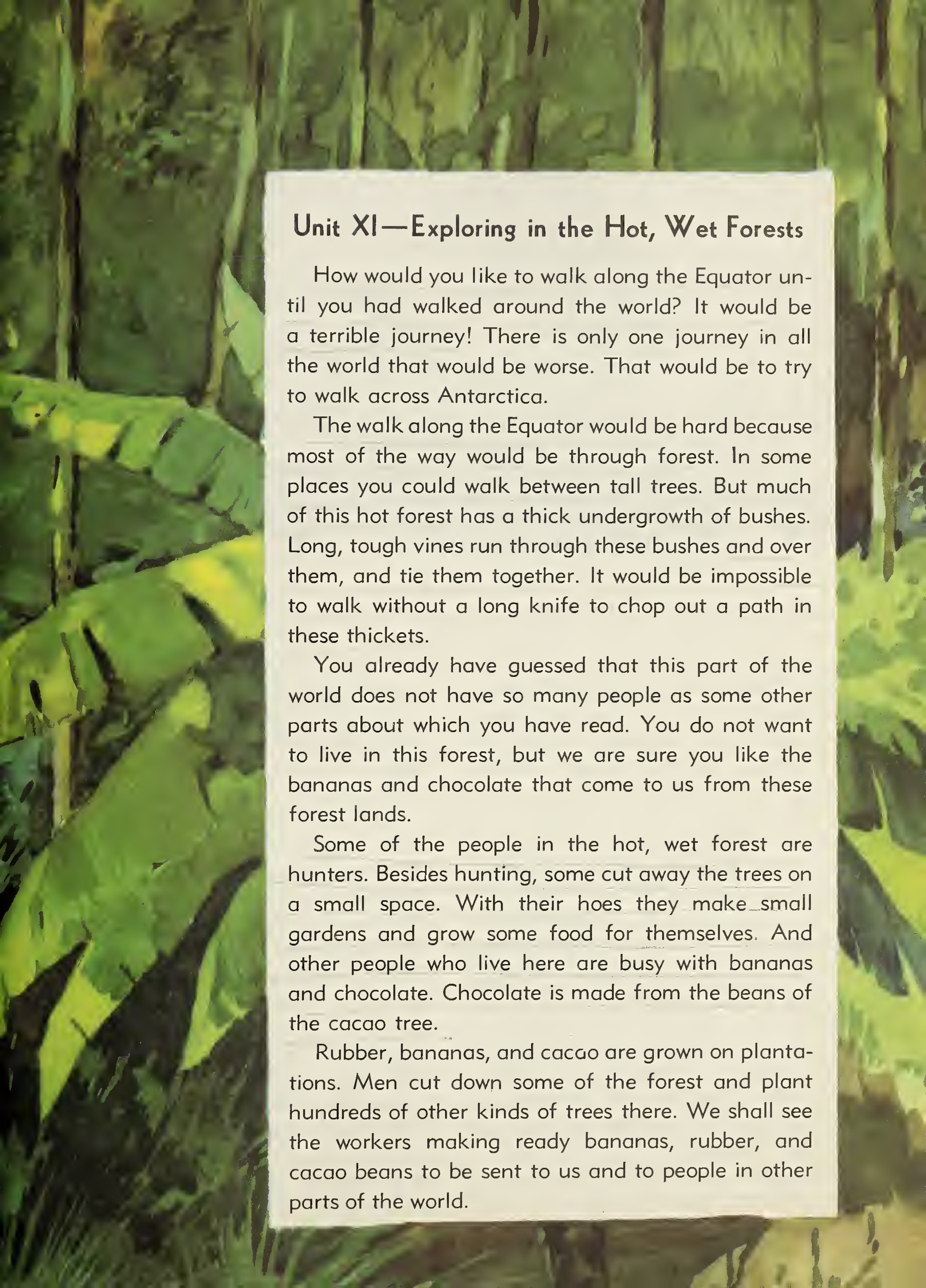
A Summary

1. Write an explanation for each of the following—

   a. Why many large animals live in the hot grasslands.
   b. Why the African grassland farmers do not use plows.
   c. How the African farmers judge a man's wealth.
   d. Why the people in South America's grassland have cattle ranches.
   e. Why the people in India must work so hard to make a living.
   f. Why the houses in India are made of mud and often have grass roofs.
   g. How living in the hot grasslands is different from living in the cool grasslands.

2. Use the drawings on this page, your answer to the first question, and the illustrations and story in Unit X to help you write a word picture of living in the Hot Grasslands. A paragraph on each of the following topics will show whether you understand the land and its use in the areas of Hot Grasslands.

   a. food
   b. clothing
   c. houses
   d. animals



Unit XI—Exploring in the Hot, Wet Forests

How would you like to walk along the Equator until you had walked around the world? It would be a terrible journey! There is only one journey in all the world that would be worse. That would be to try to walk across Antarctica.

The walk along the Equator would be hard because most of the way would be through forest. In some places you could walk between tall trees. But much of this hot forest has a thick undergrowth of bushes. Long, tough vines run through these bushes and over them, and tie them together. It would be impossible to walk without a long knife to chop out a path in these thickets.

You already have guessed that this part of the world does not have so many people as some other parts about which you have read. You do not want to live in this forest, but we are sure you like the bananas and chocolate that come to us from these forest lands.

Some of the people in the hot, wet forest are hunters. Besides hunting, some cut away the trees on a small space. With their hoes they make small gardens and grow some food for themselves. And other people who live here are busy with bananas and chocolate. Chocolate is made from the beans of the cacao tree.

Rubber, bananas, and cacao are grown on plantations. Men cut down some of the forest and plant hundreds of other kinds of trees there. We shall see the workers making ready bananas, rubber, and cacao beans to be sent to us and to people in other parts of the world.

Dickason from Galloway

Chapter 26

The Hunting People

The Punans Move to a New Camp

As we flew over Africa in our airplane, we saw a large forest near the Equator. The Equator, as Sam learned when he was in Greenland, is an imaginary circle around the earth, halfway between the North Pole and the South Pole. In countries near the Equator, the weather is hot the year around.

We might say that it is always summer, and never winter. There is some rain every month in the year on nearly all of the land near the Equator. The heat and the many rains make trees grow, so that forest covers the land. Let us call this part of the earth the "Land of the Hot, Wet Forests." There is a band of this forest almost all the way around the world.

In these hot, wet forests many of the trees are very, very tall. If you could climb the trunk of a tree, you might go up for 60 feet, or about the height of ten men, before you could sit on the first branch. From that branch you might look up and see only leaves and branches and vines. The leafy tops of the tall trees meet high above your head. The leaves on the topmost branches are so thick that the sunshine is kept out. That makes noon in this forest seem dark like evening. Under the taller trees are smaller trees, perhaps as high as a house. Under the smaller trees are bushes and tree ferns. Tree ferns sometimes are as tall as a two-story house.

There are many other plants in these forests. Big vines climb to the tops of the tallest trees. The stalks of the vines are as large as your arm. Some of the largest vines twist around and around the trunk of a big tree until the vine squeezes the tree to death. Smaller vines run from bush to bush, and tie the bushes together. In the warm, moist air of this forest, plants and vines are growing all the time.

We call this kind of forest a jungle. It is hard to get through a jungle. You could hardly force your way through bushes and vines. You would have to twist and turn, and perhaps crawl at times on hands and knees. In many places, you might have to cut a path with your long knife. The forest people nearly always carry big knives about 2 feet long. They use these knives to cut paths.

The hot, wet forest has many insects. Insects like the heat, the damp air, the wet earth, the pools of water, and rotting logs. The damp forest is therefore a land of mosquitoes and many other insects. There are gnats that bite and sting, flies that crawl over you and bite, and insects that make a little hole in your skin and lay their eggs under your skin. When this egg hatches, it is a worm that lives in your flesh. We do not think the jungle is a very pleasant place, but people live there.

The hot, wet forest people have three different ways of making a living. Some live on what they can find in the forests—fruits, nuts, roots, fish, and wild animals. These are hunting people.

Some have gardens, plant crops, and grow grain, roots, fruits, and vegetables for their own food.

Some work on plantations, which are really large farms. A plantation with its workers is like the Jenkins farm in one way. The people produce one or two things to sell, and buy nearly everything that they use.

Let us read about each of these ways of making a living. The first one will be that of the people who live by hunting and finding things. Some of these people live in Borneo.

Borneo is a very large island southeast of Asia. It has forests so large that you might walk through them even for a month, and not come to the end.

Kalang and his family live in a forest in Borneo. They are Punans. They have light yellow skin and straight black hair, and are very strong.

"Sh-h! Keep still. What do I hear?" whispers Kalang. He listens. "Two men talking. Strangers," says he. "One is a white man. Come!"

Without another word, without a sound, Kalang picks up his blowgun, his big knife, and his ax. Paya, his wife, picks up the cooking pot and puts it into a basket. She also packs some food and wooden dishes into the basket. She puts the baby into a net bag and slings it across her shoulder. Bulan, the twelve-year-old boy, rolls up the sleeping mats, and ties them with a piece of tough vine that he has ready. Tina, the nine-year-old girl, picks up some small baskets and several other small articles. She puts them into a large basket. In a minute after Kalang said "Come!" the family has moved.

They carry with them all their things, everything they own. In a few seconds they are out of sight among the thick bushes. Bare feet make no sound as they all stoop to pass under the low branches of small trees. They find their way around the trunks of big trees without making any noise at all.

When the family is safely out of sight of the camp, Kalang says, "Stay here. Be still! I watch."

He goes back through the bushes, to an opening in the jungle, where he can see the camp they have just left. He hides among the bushes and he watches the camp. He wants to see the strangers. Soon a white man with a gun and a brown man carrying some birds come up to the camp. They stop and look around.

"Another Punan camp!" says the man with the gun. "Here is a fresh fire, but where are the Punans? We find their camps, but never any Punans. They always run away."

"Yes," replies the brown man. "Punan always run away. Punan afraid of strangers. Punan good man. Punan kind man. But white man have gun. Punan have only little blowgun—shoot with his own breath. So Punan run away."

Kalang and his family do not go far. There are thick bushes on all sides of them, and the great forest spreads out in all directions. The Punans know that they can get through the bushes faster than the white man can. The white man knows it too, so he goes on through the forest looking for birds. He is getting birds for a museum in New York.

Kalang and his family walk on through the jungle. In about an hour, they come to a small stream.

"We camp here," says Kalang.

Bulan and Tina make the house. You and your friends could not make the house in which your family lives. But the Punan house is very different from our houses. The family will use their house for only a few days. They are always going from place to place, looking for food.

It takes only an hour to make the little house. With ax and knife, Bulan and Tina cut sticks to make a frame for it. They tie the sticks together with pieces of tough vine. They make the roof of large leaves.

Perhaps you think that the leaves of trees would not make a good roof. But some of the trees in this forest have wide, tough leaves that are as large as a boy's coat. Bulan and Tina tie the leaves to the framework of sticks. When the roof is made, the house is ready. It has no walls.

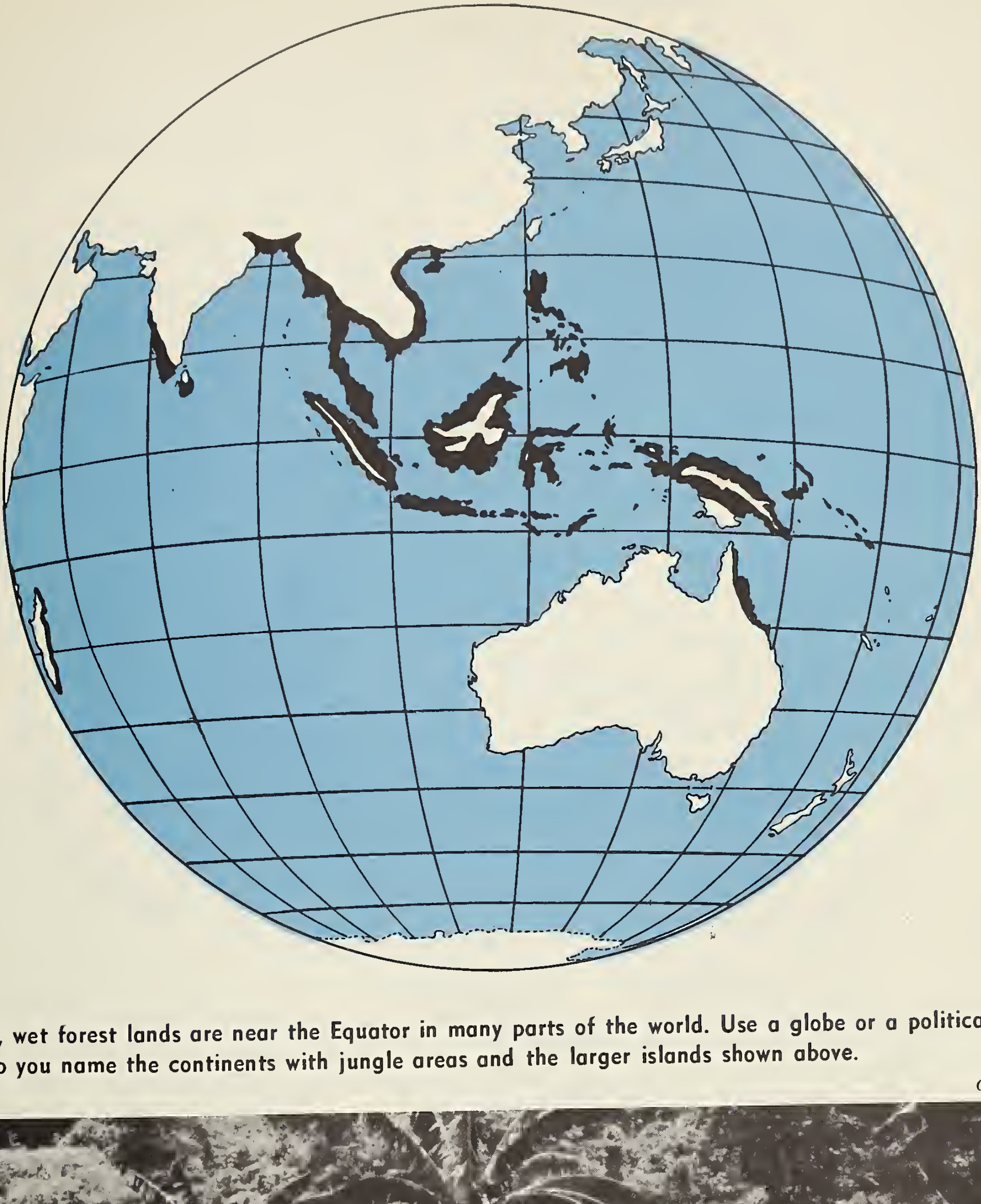
This little house is all the Punans need. They need shelter only when they sleep and when it rains. The rest of the time they stay out-of-doors, for it is always warm, and often hot, in their forest. The Punans never heard of frost or snow or ice. They never felt a cold north wind.

1. What is the chief difference between weather near the Equator and arctic weather?
2. Use a globe or a map to locate the Equator. Trace with your finger the band of hot, wet forests around the world.
3. From your globe study of the equatorial lands, name the continents and islands that have hot, wet forests.
4. You will want to locate the home of the hunting people—Borneo—on a globe or a map.
5. Discuss with your classmates why plants are growing all the time in the hot, wet forests.

The Blowgun

While Bulan and Tina are making the house, Paya, their mother, goes hunting along the bank of the stream. She finds some wild plants with thick, fleshy roots. They are taro plants. Taro grows wild in this forest. Paya digs enough taro roots to fill a small basket. She washes the roots in the stream. When she gets back to camp, she makes a fire on the ground. There is plenty of wood for fires.

While all this is going on at the new camp, Kalang is walking very softly through the woods. He is peeping into bushes and looking up into trees. He is hunting. Kalang is hungry and wants some meat. At last he sees some monkeys in the trees.



Hot, wet forest lands are near the Equator in many parts of the world. Use a globe or a political map to help you name the continents with jungle areas and the larger islands shown above.

Galloway

"Monkey for supper!" Kalang whispers to himself. He quietly takes the lid from a bamboo case that hangs from his belt. He pulls out a little dart about ten inches in length. He slips the dart into the end of his blowgun. A blowgun is a tube, sometimes as long as ten feet, made from hard wood. Kalang's blowgun is longer than he is tall.

Slowly Kalang raises the blowgun and aims at a monkey. He takes a big breath. "Poof!" Kalang blows a big breath into the blowgun. The little dart flies out of the other end of the gun and sticks in the monkey's leg. It is a very small dart, not as large as a lead pencil. It does not hit the monkey very hard, nor hurt him very much. The monkey runs along a branch, jumps to another tree, and then to another. Then he stops. He sits still. He shuts his eyes. His head drops. In a short time the monkey falls to the ground—dead.

You see, the little dart which does not seem to hurt the monkey much is a poisoned dart. Long, long ago, the Punans learned how to make a poison from the sap of a certain tree. With this they smear the tips of their darts. When a poisoned dart goes into the flesh of an animal, that animal dies in a short time. But its flesh is good for food.

Kalang takes the monkey back to camp, and Paya cooks it in the pot of boiling water. That evening the family eats boiled monkey and roasted taro roots. The roots are cooked by first being wrapped in green leaves, then covered with hot ashes and coals. Sometimes Boy Scouts roast ears of corn in the same way.

In this forest homeland of the Punans, there are no gardens, no fields, no farms. The people can find wild fruits and nuts and roots in the forest every day of the year. They catch fish and eat them. They eat the meat of birds and animals that they catch in traps or shoot with the blowgun. They eat every kind of animal in the forest except a big snake called the python.

People who make or find their living in this way are sometimes called food-gatherers. This forest that is hot all the time is a good place for food-gathering people. Plants are growing all the time, and fruits and nuts and roots are ready to be eaten at all times.

The Punans can make sounds like the calls of the birds and animals. This is a great help in hunting. By giving the calls, the hunter brings birds and animals within easy reach of the dart from his blowgun. The men are fearless hunters. They even kill an animal as big as the rhinoceros.

The Punan hunts for food without the help of any animal. He does not have even a dog to help him hunt. There are no chickens to lay eggs, no cows to give milk. The Punan has to work long hours to get the food he needs.

Some men from Europe have lived with these people. They have learned the Punan language and know the people well. The Europeans say the Punans are very kind and polite. Quarreling and fighting are almost unknown among them. Instead, they are always helping one another. They have no jail and no policeman.

1. Why must the Punan work hard for the food he needs?

The Forest Is Bulan's School

When darkness comes, the Punans sit by their campfire and talk. Kalang tells the family all about the white man he has seen that day. He talks of the man's gun and of his clothes. They all wonder

Phila. Commercial Museum (facing page)

If you could look down on a little village in Borneo, you would see these houses, with their grass or palm leaf roofs, in a clearing in the forest.

why anyone wants to have clothes all over himself here in the warm forest. The Punans often wear nothing at all but a waist cloth that is made of the soft inner bark of a tree.

Kalang tells a story that his grandfather told long ago. He then asks Bulan to repeat a story that was told the week before. Tina listens carefully. If Bulan makes even the smallest change in the story, Tina is quick to correct him.

"Now, Bulan," says his father, "tell me what you know about the warrior ants."

The children know the story well. Kalang told them about the warrior ants as soon as they could walk. Warrior ants will bite and fight almost any animal or person they can find.

These warrior ants are larger than any ants you ever saw in the United States. They are often to be seen in the Punan forest. Thousands live together in ant houses. The children of the forest are very careful not to step on a warrior ant with their bare feet.

Fathers and mothers, grandfathers and grandmothers teach the Punan children what they need to know about living in the forest. The children must learn about plants and animals. They must know which plants are poisonous and which are good for food. They must learn where to look for the good plants, and how such plants may be used.

The young Punans are taught the name of every animal. They must learn the habits of each animal. Will it fight, or bite, or run away? Where does it go? How is it caught? How may it be used after it is caught?

You may wonder if there is a schoolhouse in this hot, wet forest. Is there a school teacher? No, Punan children know nothing about schools and teachers. They cannot read the black signs—letters or words—that we put on the white paper of a book. But they can read the signs of the forest. We cannot do that nearly so well as they can.

We may look at a spot of ground and see nothing but the earth. But if Bulan looks at the same spot, he may see signs there. He may say, "See, rat tracks! Wood rat has been here."

Kalang can follow these signs through the woods. He can follow the track of almost any animal. A white man may not see the track at all. Some of us may find it when the animal comes to the bank of a stream and leaves foot prints in the mud. The white man has not lived in the forest all his life as the Punan has. He has not learned to read the signs of forest life. From the time the Punan was a small child his eyes have been trained to see the tiniest sign. He will see ever so small a sign as a leaf that has been moved, or a twig that may have been bent or broken as some animals passed.

A man from Europe once was visiting some Punans. One day there was great excitement in the camp. A young Punan came, holding one human hair between his thumb and finger. He had found the hair on a low branch of a tree. What was the color of this one single hair? Whose hair was it? Was it friend or enemy? Who was in their forest?

The Punans held the hair up to the light. They passed it from man to man. Each one looked at it carefully. They talked about it for a long time. At last they agreed that the hair was from the head of a man of another tribe. This tribe lived in another part of the forest. It was learned later that they were right.

When it is time to sleep, Kalang puts green leaves on the fire. This makes heavy smoke that keeps mosquitoes away. All go to sleep on bamboo mats which they themselves have made.

An hour later Kalang sits up quickly. He has heard something. It is thunder. The sound grows louder. They have much loud thunder in Borneo, and very heavy rains. Sometimes it rains every day for several weeks.

Soon after the thunder, a roaring sound is heard. It is the sound of heavy rain falling on the leaves of the forest. Big raindrops begin to fall to the ground around the Punans. Rain falls on their little house. The roof leaks a little, but the Punans do not worry about it. Rain at night or rain by day is a common thing. Soon the entire family is asleep again.

1. Name some of the signs of the forest that the Punans read.
2. Why do you think Punans are better able to live in the forest than you would be?
3. Do you think Bulan's school is a good one? Give reasons for your answer.

Free Food in the Forest

"We need butter," says Paya the next morning. "Taro is dry without butter."

Kalang and Bulan take a basket and go into the forest. They are looking for a "butter tree." In about an hour Kalang finds a butter tree.

When Kalang and Bulan come near the tree, a wild pig runs away from it and goes into the bushes. The pig has found the butter tree first. It has eaten all the nuts that were on the ground. Bulan climbs the tree and shakes the branches. Many nuts fall. Soon Bulan and his father have a basketful of nuts and go back to their camp. They put the basket by the cookplace and sit down in the shade.

Paya and Tina crack the nuts between two stones. They throw both nut meats and shells into the cooking pot. When the pot is full of cracked nuts, Paya sets it over a bed of coals—not a flame. A flame might burn them. The coals make a gentle heat that melts the fat in the nuts. After the fat is melted, Paya pours

The Borneo natives use the blowgun and a sword, called a mandau, to kill the game they need.

Black Star

it into three small jars that Kalang has made of pieces of bamboo.

The family now has enough butter for several days. They carry it with them, stored in the little bamboo jars.

The family stays in this camp three days. They have not been in this part of the forest for two or three years. Kalang wants Bulan to know this part of their country. Every Punan needs to know the best way through miles of forest.

Bulan is walking ahead of his father along a trail. Suddenly Kalang cries, "Stop!" Bulan stops. He does not even finish the step he is taking. He stands with one foot in the air.

"See that plant?" says Kalang. "That is poison-leaf plant. Never touch poison-leaf plant. Almost did touch it. Poison in leaf makes skin very, very sore for many days. Look at leaf. Tell how you will know leaf next time."

As they go back to camp, they keep a sharp lookout for landmarks, so that they will know how to come this way again. Here is a tree with two trunks. There a tree with a large knot on its trunk. Another tree has very thick vines hanging from it in a strange way. Here is a large rock. By signs like these the Punans remember the way through the forest.

The next morning Kalang has Bulan take him back over this trail to make sure the boy knows the way. It is a kind of examination in the only school that Bulan knows.

"I want sago," says Paya one morning. "Tired of eating taro roots."

"Then we hunt sago," says Kalang.

Sago is a starchy food that comes from the sago palm. The sago palm is very useful to the Punans. Its trunk has a hard outer shell and a soft inside. This soft inside is called the pith. At a certain time the pith is full of something good for food. You can find some of it in almost any grocery store if you ask for sago.

There are no sago palms near the camp, so the family moves. They pick up the cook pot, the mats, the tools, and the dishes. They carry the boxes and baskets, and, of course, the blowgun. They walk for three or four hours through the forest until they find some sago palms.

Everyone except the baby goes to work. Punans do not use a cradle or a crib. Paya just looks for a small tree with a trunk that is easily bent. She pulls it down and hangs the baby's carrying bag to a top limb. Then she gives the tree a push, and it moves up and down, rocking the baby while Mother goes about her work.

There is work for everyone now. First they need something in which to put the sago, so Kalang cuts down a tree. He and Bulan take turns hollowing out the log with the ax. They work until they have made a trough of it. Next they cut down a sago palm. They split its trunk and dig out many chunks of pith.

While Kalang and Bulan are making the trough and getting the pith, Paya and Tina are making a mat of bamboo. They have cut long strips of the stiff outer shell of a small kind of bamboo. They weave the strips of bamboo to make a mat of loose basketwork. Tina lays the mat in the trough. There are small openings between the strips of bamboo in the mat. Paya puts the pith from the sago tree on the mat.

Paya and Tina wash their feet very clean. They step on the mat in the trough and tramp the sago pith that lies on the mat. They pour a little water on it, and they tramp and tramp and

U. of Pa. Museum

Cooking and eating supper out-of-doors is fun, even in Borneo. These Punan boys have built a platform over a fire to roast meat. Is there plenty of wood for fires in this part of the world?

tramp. Their feet press the sago out of the pith. The water washes the fine grains of sago through the small openings in the mat. When they take out the mat and pith, the sago and water are left in the trough.

In a few hours the sago has settled to the bottom of the trough, and Tina can dip the water out with a bamboo dipper. Soft chunks of sago are left in the bottom of the trough. Paya puts some of the sago on the mat to dry. Dried sago can be used the next week, or the next month if it is kept dry. Then Paya puts some sago into the pot, and cooks it for their next meal.

All Punans are fond of boiled sago. It does for their bodies what bread or potatoes do for ours. They eat sago with the help of a bamboo stick which is bent double to make a kind of fork. The sago sticks fast to the bamboo fork. How the Punans do like to dip the sago into a wooden bowl full of pork gravy! Boiled sago, roast pork, and pork gravy—that is a Punan feast! With our meat we would eat vegetables or salad. But with their meat the Punans eat the tender young shoots of fern and palm.

"Let's go back to our people," says Kalang one morning soon after sago had been made.

A Punan family does not live by itself much of the time. In Kalang's group are his own family, his two brothers, several uncles and cousins and their families. There are about forty persons, both big and little, in this group.

Kalang and his family come to the place where their people were when they left them two weeks before. The little houses are still there and so are the ashes of dead cooking fires. But there are no people! They have gone on to another camping place. Kalang finds the trail which they have taken. He lets Bulan walk first to see how good he is at trailing.

"Ha!" says Bulan half an hour later. "Look! Wild pig!" He points to tracks that cross the trail they are following.

Phila. Commercial Museum

Borneo natives like to wear many bracelets and other ornaments. Beautiful colors and patterns are woven into the material for their clothing.

"Nice to take a pig home," says Kalang.

"Let me get him," says Bulan.

So everybody stops and waits while Bulan, with his blowgun in hand, quietly follows the trail of the pig. In an hour he hears a small noise. A pig is eating nuts under a butter tree. Bulan makes no noise as he creeps along. Quietly he raises his blowgun.

"Poof!" and away goes the dart.

The pig squeals a little and runs. But he does not run far. Like the monkey, the pig soon drops dead. In another hour, Bulan returns to his family carrying a fat, young pig.

As the family comes to the camp of their people, there are many pleasant greetings. Bulan walks up to the cookplace and lays down his pig. That means, "All share." That is the Punan way. They share all the animals they catch. That evening all have a feast of roast pork and gravy. There is much talk about the things that happened while Kalang's family was away.

1. How is the butter the Punans use different from the butter the people in our farm lands use?
2. Tell how the Punans get sago and use it.
3. How do they get roast pork in the forest?
4. Tell how the children help the family to get "free food."

Good Neighbors

One day when Kalang is hunting in the forest, he comes down a steep hill. He trips, and breaks his blowgun.

That is bad. A Punan without a blowgun is almost as badly off as you would be in school without paper, pencils, and books. Of course, Kalang can catch animals and birds in traps. But every Punan must have a blowgun. Kalang must make a new one for himself.

Kalang finds a jagang tree, which is the best kind for making blowguns. Its wood is hard, and its grain is straight. Kalang cuts down the tree. Then he splits the trunk in two and then he splits off a number of pieces about 8 feet long. He picks out the best piece and with his ax shaves the wood until it is a straight piece about 3 inches in diameter.

It takes Kalang six hours to do this. But it takes several more days to finish the work on the blowgun. To keep it straight, the piece of wood is tied fast to some poles. Then burning sticks of wood are held close to it, to dry the wood and make it still harder. Then a hole is made with an iron rod. Then the inside is made smooth by drawing a small rough vine backward and forward through the hole. The outside is smoothed with knives and axes. One end is made a little smaller than the other end. Then the blowgun is rubbed with the rough bark of a tree until its outside surface is as smooth as an iron pipe.

Next a spearhead is bound fast to the small end with strong vine. You see, the blowgun is both gun and spear.

Now the blowgun is finished. It is a wonderful tool and weapon.

The Punans make their blowguns, but they do not make the iron boring rods that they use in making the gun. They get iron by trading with the Dyaks.

The Dyak is a kind of cousin of the Punan. He has brown skin and straight black hair. It was a Dyak who was with the white man who frightened Kalang and the family away from their camp in the forest.

The Dyaks live just outside the forest in villages by the river. Their houses are set on poles to keep them away from the damp ground. The walls and floors are made of bamboo. The roofs are made of palm leaves.

The Dyaks live in the same place year after year. They are boat people and farmers. Each family has a garden with

Some of the hot, wet forest people live along rivers and depend upon fishing for their living. The Dyaks build their houses on stilts high above the ground, so that water cannot reach them when there is a flood. How is the life of the Dyaks different from that of the Punans?

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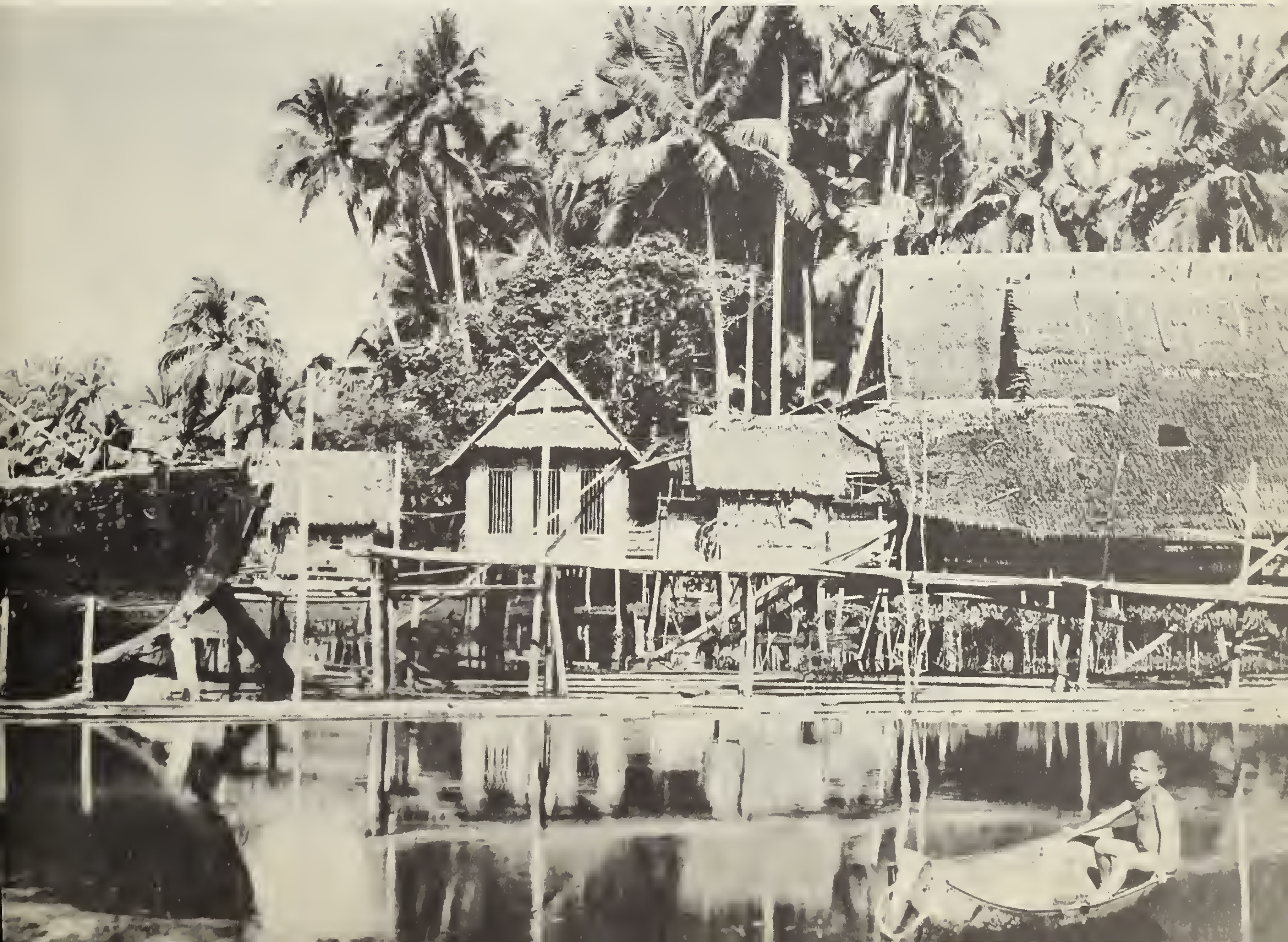


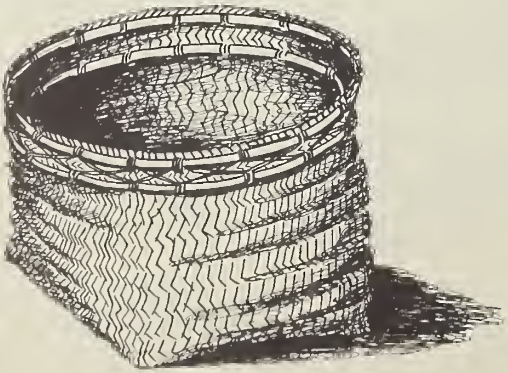
rice, corn, beans, and sometimes a few other vegetables.

The Dyak does not like the forest very much. He would rather live by the river. He likes to have a boat and catch fish as well as to have a garden. He trades with the white man and with the Punans. The Dyak is glad that Punans live in the forest not far away.

Now and then the Punans come to the edge of the forest to trade with the Dyaks. The Punans bring baskets, rubber, beeswax, wild honey, birds, feathers, wild pig, and other forest products. These they trade for iron, tobacco, beads, and other things. Some of these things the Dyaks get by trading with white men. The things the Punans like best are salt, tobacco, and rice. To the Punans rice is cake and ice cream and candy. Rice is a pleasant change from sago and taro root.

Sometimes the Punans get beads from the Dyaks. They like to string beads and make ornaments for themselves. They also make bracelets and anklets of nicely braided palm fiber. The Punan women make very fine baskets by braiding bamboo and rattan. Rattan is a kind of climbing palm that has a hard bark. Long strips of this bark are used to make the seats of chairs in our country.

The Dyaks are glad to trade their own goods for the Punan baskets. Some of the Punan basketwork is almost as fine as cloth. Some of the basket fibers are dyed red, and others are dyed black. With these two colors the Punan women weave pictures into the sides of their baskets.



We have seen that the Punans are able to get a living in the forest without the help of animals. They do not have dogs, or horses, cows, sheep, or goats. They have no machines of any kind. These people live on the wild things they find in the forest, and they are strong people.

When people live without many tools and with only a few other things, we call them primitive. The Punans are primitive people. Your ancestors and our ancestors were primitive people before they had many tools. There was a time when all the people in the world lived as the Punans now live.

There are many places in this forest land, in three continents, where small groups of people still live as the Punans live. There are such primitive people in other islands near Borneo. There are some in the part of Asia that lies farthest south. That is the long narrow land named the Malay Peninsula. There are some people who live in the Punan way in the forests of Central Africa. There are also some who live in the same way in the forests of the Amazon Valley in South America.

Most people have changed from the primitive way of living. In the long ago some person got a new idea—something about a tool, or a weapon, or a crop, or an animal helper. Someone tried a new way of doing some things and it worked. Then others tried it, too. Man found out about fire and how he could make it. He learned to make better tools. He planted different kinds of seeds and grew new

Galloway

The natives who live along rivers do much trading. It is easier for them to travel and to carry goods by boat than to walk through the thick forests carrying the goods on their backs. The natives use huts built on rafts as stores. There are hat stores, though the hats look more like large baskets.

crops. He got animal helpers. He found metal and learned how to use it.

Finally, man made machines. We say that we live in the machine age. More and more people are learning to use machines. Our way of living is very different from the primitive way of living.

1. Name five things the Punans take to trade with the Dyaks. What five things do they get in exchange from the Dyaks?

Some Things to Do

1. Add the word "jungle" to your notebook list of geographical terms.

2. Draw a picture of your idea of a jungle.

3. Write a paragraph describing the jungle. Choose from this list the words you will need to use in your description—

dark
cold
moist
noisy
hot
silent
light
dry
green
brown
blue

4. Discuss with your classmates—
   a. Why Punans wear fewer clothes than most people do.
   b. Why the Punans eat monkey meat instead of beef. Why they do not drink milk.

d. In what ways the Punan house is different from the house you live in, and why.

5. Build a model of a Punan house. Use sticks, vines, and leaves, or you can build one of heavy paper or cardboard. Read again the description of the house before you begin to build one.

6. The Punan uses a blowgun and poisoned darts to get meat for his supper. Write a description of the blowgun and the way in which a Punan uses it. Read your story to someone at home.

A Short Quiz

Here is a list of names about which you read in this chapter. Copy on a sheet of paper the list of names. Choose the correct explanation for each from the list of meanings. Write the meaning with the name.

Names

1. taro
2. sago
3. rattan
4. jungle
5. python
6. jagang
7. Equator
8. rhinoceros
9. Dyaks
10. Punans

Meanings

a. A thick growth in the tropics of trees, bushes, and vines.
b. Tree of hard wood with straight grain, used for making blowguns.
c. A plant whose roots are eaten by the people in Borneo.
d. A large snake which crushes its prey.
e. Climbing palm used to make baskets and chair seats.
f. Primitive people who move to find food and who have no animal helper.
g. A starchy food taken from the pith of a certain palm tree.
h. One of the large jungle animals.
i. People who live in the same place year after year at the forest's edge.
j. Imaginary line around the earth, halfway between the North Pole and the South Pole.

The town of Macassar in the Dutch East Indies is near enough to the Equator to have much tropical heat. Compare this street scene with one in a town in the Corn Belt.

Galloway

Phila. Commercial Museum

Chapter 27

The Garden People

We Go to Imbo's Village

You will be very hot but you will have fun in this forest community with Imbo and his people. But first we shall take a boat trip.

On our visit to the grasslands of Africa we saw from our airplane a steamboat on the Congo River. Suppose we take that steamboat and go far up the river into the Congo forest.

This forest is a long, long way from the Punan forest. But the two forests are very much alike.

The river steamboat is bringing many things to the people of the Congo. Some of the things will go to Imbo's village. The things were made in factories in the United States and in other countries. Packages of these goods are carried to Africa in an ocean steamship. Then they are taken up the Congo on a steamboat.

We seat ourselves comfortably in the river boat and it begins to move forward. We seem to be passing between walls of green leaves that line both sides of the river. In some places we see open spaces where there are grass houses and sometimes a garden. At a bend in the river our boat slows and stops at a landing. Men and boys come on board to carry some of the packages ashore. The boat stops many times to leave packages at landings.

After three days on the boat we go ashore at a town. The town has many grass houses and a warehouse with roof and sides of metal. The metal has come by boat from Europe. Negro boys carry packages from the boat and put them in a warehouse. They take some of the packages to a truck. The truck came two years ago by boat from the United

States. Negro boys put packages on the truck until it can hold no more.

A small bus stands beside the truck. We get into the bus with some other people. The truck and the bus follow a very rough road that leads into the forest. Such ruts! Such holes! Almost every minute we expect the bus to break down. But it keeps going.

In a few hours we come to a small town. Several hundred Negroes and a few white people live here. There is a telephone line connecting this town to the town where we left the steamer. Both the telephone line and the road end here. Only a narrow footpath leads on into the forest. Wheels can go no farther.

We find thirty Negro men waiting for us. They have come to carry packages, as the truck can go no farther. We ask the men how they knew we were coming. There is no telephone, no telegraph, no radio where these men live. "How did you get the news?" we ask.

"The drums tell us," says Imbo, their leader. Imbo speaks a little English.

Every village has its drummer. Some of his drums are made of a piece of hollow log with skin stretched across the top. There are big drums and little drums. Some drums make a high, sharp sound like "pick-pick-pick." Others make a deep, low sound like "boom-boom-boom." You can tap a drum in different ways. You can make fast taps, or you can make slow taps. You can make a short stop between taps, or you can make a longer stop.

By tapping the drums in different ways, the drummer can talk to people many miles away. The drum carries messages to the next village. Then the drummer in that village taps his drums, and passes the news on to the next village. Messages can be sent hundreds of miles in one night. A drummer does most of his drum-talk at night. This is because sound carries better in the stillness and dampness of the night.

One of the men taps a fallen log with two sticks to show us how it is done. He uses short beats and long beats to tap out a message. The sounds the drums make would look something like this if you tried to make a picture of the sounds—

1st Drum: .... —— —— ——
2nd Drum: .... —— —— ....

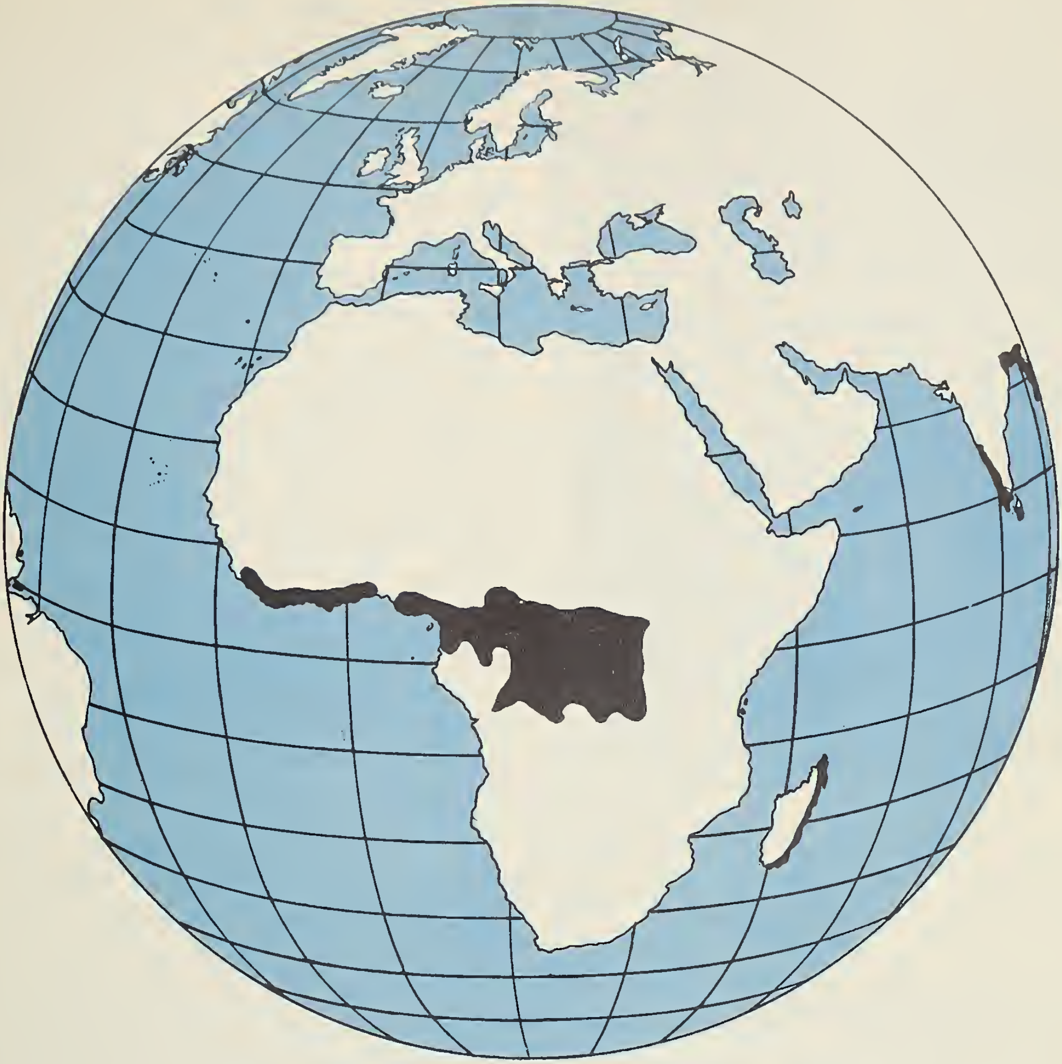
This message says, "Aba babapp ka mfam, ekem ekifari," which means, "Come quickly to town, hawks are around." By "hawks" the Negroes mean white people.

"Drums talk!" says Imbo. "Drums tell forest men to go get new things."

Imbo, the head carrier, calls his men. They go to the pile of large packages that lie where the truck left them. Each man puts a package on his head and walks away into the forest. Each package weighs about sixty pounds. That is the weight usually carried by a man. The line of thirty carriers follow a path into the forest. We may say that these carriers are a human freight train! We walk with them along the trail.

Do you wonder why there are no horses or mules or oxen to carry loads? Do you think it strange that man must carry all the freight? You see, if horses or cattle came to this part of the forest, a small fly, the tsetse fly, might bite them. The bite of the tsetse fly carries a deadly sickness from one animal to another and kills them. Men can carry freight because they can protect themselves from the bite of the tsetse fly.

The carriers travel with ease along the forest path. They are very cheerful.



Central Africa has hot, wet forest regions much like those in Borneo. The Congo River is bordered with jungles for many miles. What kind of land do you find directly north and south of this jungle?

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Underwood and Underwood

You probably could not follow this forest trail and the Africans who follow it might get lost easily in our city streets. Do the things you need to know depend somewhat on the place you live?

They call out the names of trees and plants. Imbo tells us in English what the carriers are saying.

Every man watches the trail for the tracks of animals. They can tell what animal has passed, and when it has passed. Now and then a carrier steps into the bushes to get some nuts or fruit or berries.

Several times the carriers stop and put the packages they carry on the ground. They lie down under the trees or lean against the packages to rest. We are glad to rest, too. Imbo tells us about a long march he once took. He was with a caravan of carriers that was taking ivory to a trading post. You remember that a caravan is a number of men or animals or wagons traveling together.

"Walk many days. Ivory heavy. Very tired. Very hungry," says Imbo. "No meat, no bananas, only little berries. I say, 'Can go no more.' But white man say, 'Must get ivory to river boat. What do, Imbo?' I say, 'I call the meat.' "

Imbo tells us that he and another carrier took the man's guns and went to a quiet place in the forest. Imbo crouched down and began to make calls like the joy cries of the monkey.

"We watch treetops," says Imbo. "Then treetops move. Monkeys come. They hear man make monkey call. Many come. Monkeys jump from tree to tree. Guns kill five monkeys. Fine! That night carriers eat monkey. Eat him raw. Too hungry wait for cook!"

Imbo makes the joy cries of the monkey for us. The other men make animal calls, too, and bird calls. They laugh and have a lot of fun.

At sunset we reach a village of about thirty houses. The village stands in a clearing, or open space, in the forest. All the trees were cut down and cleared away to make room for the village. "My home," says Imbo.

The Negro folks greet us and make us welcome. They are much interested in strangers. They look at our clothes and our camera. They give us a small grass house in which to sleep.

1. On what river will a steamboat travel to get to the hot, wet forest in Africa?
2. Why do you think the warehouse is built of metal and the houses of grass?
3. Why do you think sound carries better during night than day in the forest?

Making a House and Garden

The next day Imbo and his son, Ingo, start making a house for Ingo and his new wife. First they set up four posts as corners for the house. The posts have forks at the top. Imbo lays four poles across the forks, and Ingo places smaller poles across the larger ones. This makes a framework for the house. The men fasten the poles together with pieces of strong vine. Then Ingo cuts some large leaves of palm trees. The leaves make the roof and the four walls of Ingo's house. A thick roof of leaves keeps out heat much better than our roofs do. Imbo ties the palm leaves to the poles of the framework with more vines to make them secure.

Maru, Imbo's wife, makes mats for her son's new house. She weaves grass, or palm leaf fiber, or bamboo. Ingo puts a mat across a frame of poles and that makes a bed.

"Now," says he, "I hang two grass mats on wall."

We say we think the mats are very pretty. The weaving is somewhat like that of the Punan basket. The mats show figures in color. In almost every home in the village we see mats, baskets, and a few tools hanging on the walls.

All of the houses of the village are small. Large ones are not needed. These people cook and eat outdoors. They sit outside the house and visit friends

A house in the Congo jungles has no windows. All the fresh air must come in through the door and the cracks in the walls. In a hot country, where people live outdoors most of the time, it makes a very comfortable home. Compare this house with the houses in each of the areas you read about in this book. Is it true that houses are usually made in the way that best suits the climate of the country?

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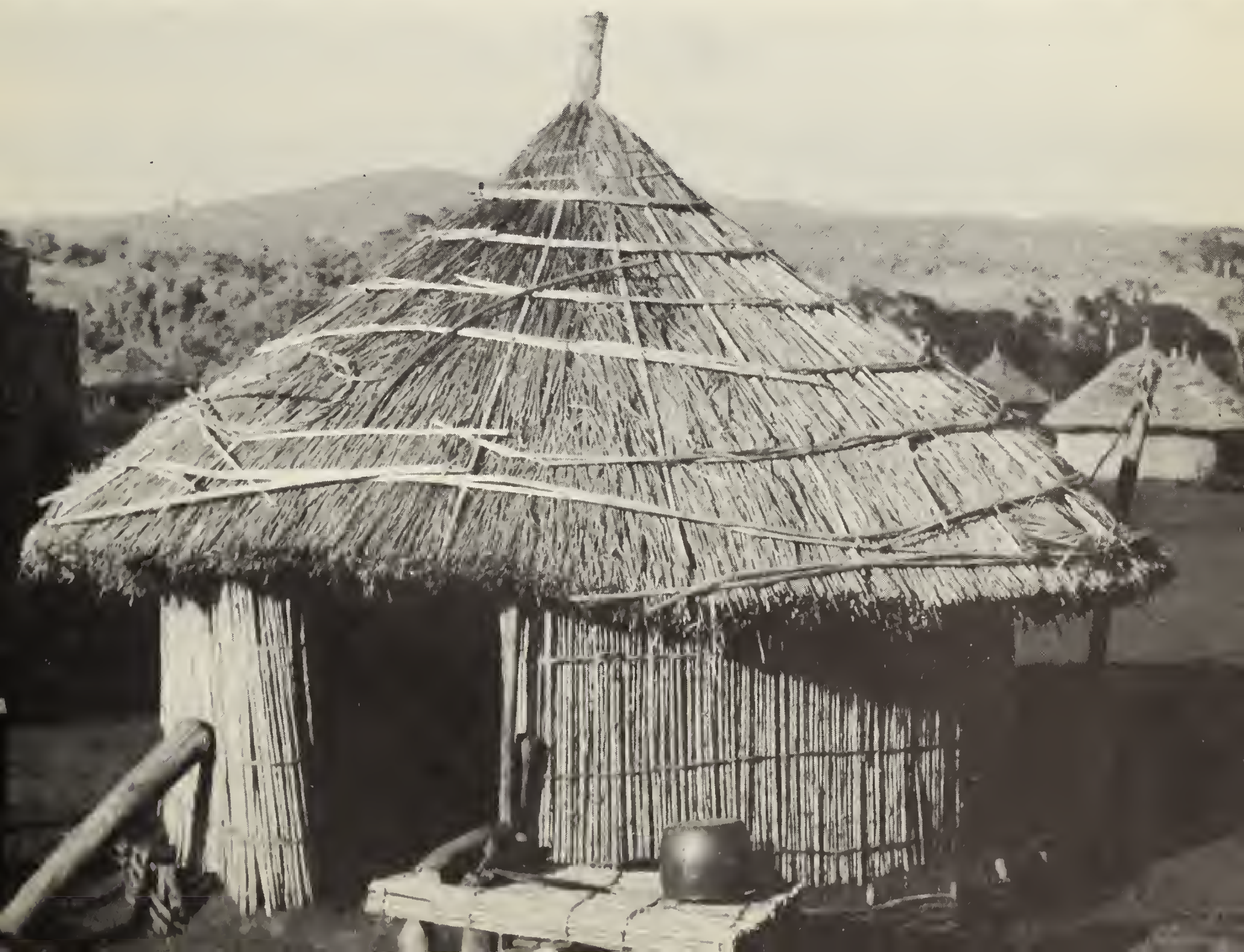

there. They have all of their meetings outdoors. The house is used only for storing goods and as a sleeping place. They sit in the house during the day only when it rains.

Imbo takes us to see the blacksmith, whose name is Taru. A blacksmith is a man who makes things of iron. Taru is the only person in the village who works for other people. He gets his pay in vegetables, meat, baskets, or whatever the people have to give in trade for ironwork.

These Congo people have known how to make iron for many hundreds of years. Taru makes hoes, axes, knives, and spearheads of iron. The blacksmith is much honored among his people because of his skill in making things for all to use. Today, in Africa, as in our own country, the blacksmith does not make as many things as he once made. Ships now bring things made of iron from factories in the United States and in other countries. But if the African has nothing to sell, he cannot buy. So in some places the blacksmith still makes tools for his neighbors. They pay for the tools, not with money, but with things they grow in their gardens, or find in the forest, or make with their hands.

We stay in the village for several days. We see the people at work and at play.

They get things in the same way that the Punans do. They get meat by hunting. But these people have something that the Punans do not have. They have gardens. So we say that these people are garden-hunting people. Some of the gardens are a mile or two from the village, but every village family except that of Taru, the blacksmith, grows its own vegetables in its own garden.

When another garden is wanted, the men go into the forest and choose a new place. They choose a place where the soil seems good. In the season of the least rain they clear a place for the garden by cutting down the bushes and smaller trees.

It is heavy work to clear forest land, but the men sing as they work. With their knives and axes they cut down all the ferns, vines, and bushes. They cut off small trees shoulder high and leave the trunks standing for bean poles. They pile what they have cut around the larger trees and when it is dry they burn it. The fire kills the big trees. Their leaves then fall off. The villagers now have a place where there is no undergrowth and where the sun's rays can reach the ground. Garden crops can grow in such a place.

It does not look much like the Jenkins garden in the Corn Belt. Big, dead trees are standing here and there. Bean vines are climbing over the stumps of small trees and big bushes. Corn and tomatoes, pumpkins and beans, are grown together. Nothing is planted in rows. This way of growing crops is sometimes called "patch farming."

Patch farmers grow things for themselves to eat. Mr. Jenkins feeds most of his crops to animals and then sells the animals. Patch farmers who grow all their crops by hand labor cannot feed many animals.

1. Give as many reasons as you can why the Congo forest people build small houses.
2. Why is the blacksmith's family the only family in the village without a garden? How does he get his food?

A Day in the Village

In the Congo forest community it is women's share of the work to plant the garden and care for the crops. Maru and the other women in the village plan to

Keystone

Galloway

Have you ever seen any of these animals in a circus or in the zoo? Are any of these animals useful to the people of the hot, wet region? Are any harmful?

Galloway

Galloway

British Combine Photos, Ltd.

The people in Liberia still pound their rice and other grains in this slow, hard way.

have seeds and roots ready for planting when the right time comes. The women and children always gather the seeds of many plants as they ripen. When walking in the woods they may find seeds which they take with them to be planted in their gardens.

When Imbo and the other men have finished clearing a place for the new garden, they have finished their part of the work. Maru and the other women now take the seeds they have saved. They take some roots and plants from the old garden and go out to plant the new garden. Maru puts all these precious things into a basket. She carries the basket on her head. In her hand she carries her long planting stick of wood and her iron hoe. Maru has seeds of corn, millet, tomatoes, beans, pumpkins, peppers, and peanuts in her basket. She has roots of bananas and yams. A yam is the starchy root of a vine which grows in the garden. It is much like our sweet potato. Maru also plants cassava roots. Cassava is another starchy food which grows in hot countries. It is as useful to the Africans as sago is to the Punans. The Africans eat boiled cassava as we eat potatoes or bread.

Mina, Imbo's nine-year-old daughter, follows her mother. She carries a small basket on her head. It is a secret, but Mina has some pumpkin seeds and some peanuts in her basket! She saved the seed herself. She wants to plant a garden, too. But Mina has not asked her mother about it yet.

Other children go with their mothers to the garden. As soon as they all reach the clearing, they set their baskets on the ground and begin the work of planting. Maru makes holes with the pointed end of her long planting stick. She drops a few seeds into each hole and draws the earth over it with her bare foot. Two girls put fertilizer made of ashes and dead leaves on the garden.

Mina finds some soft earth near a dead tree.

"Mother," she says, "please let me have this place for my garden."

Says Maru, "You can plant seed in a few minutes, but it takes long hours of hard work to care for a garden. Will you take good care of your garden?"

"Yes," says Mina, "I don't want weeds to choke my peanuts and pumpkins."

"Then you must pull out the weeds and you must hoe your garden when I hoe mine," says her mother.

"I promise," says Mina.

The Congo people like to eat pumpkins, so Maru plants many pumpkin seeds. She also plants the seed of a vine that bears gourds. Gourds have a hard outer covering or shell. When dried, a gourd has nothing in its hard shell but a few seeds. The people use gourds for making bowls, dishes, buckets and drinking cups. The gourd is a very useful plant to people who must find or grow almost all of the things that they use.

The plants come up quickly in the hot, moist climate. Then the fight with weeds begins! With a hoe and her two hands, each woman digs up and pulls out the weeds that are forever trying to spoil her garden. Sometimes the women work many hours, day after day. They sing as they work and keep time to the song with their hoes.

Mina's grandmother is too old now to walk to the garden and to work there. She stays in the village with the other old women. They weave mats and make baskets and pottery. Many Congo women can weave a basket that is so fine it will hold water.

These women make dishes and other things of clay. Grandmother finds clay that is smooth. She wets it well. Then she works the clay with her hands and bare feet until it is soft and smooth. Then she shapes it into dishes. When the clay dishes and pots are dry, she bakes them in a fire to make the clay hard.

Just as she has finished baking some clay dishes, Grandmother hears voices. It is the women and children coming from the gardens. They chat and laugh as they come. Each woman carries on her head a basket filled with vegetables.

Phila. Commercial Museum

Africans make matting of woven palm straw.

Grandmother goes to fan the coals of fire into flame. She puts wood on the fire. She fills the iron cooking pot with water. She places the pot over the blazing fire.

Maru is glad to set down her heavy basket.

"These cassava roots are as long as my arm," says she.

"The pot will soon be boiling," says Grandmother. "We can have cassava

By putting the coops on stilts, Africans protect their chickens from animals that would steal them.

Encyclopedia Britannica Films, Inc.

British Information Services

One of the many jobs women do in Africa is gathering and carrying firewood.

for supper." And she washes the roots and puts them into the boiling water.

Maru puts some of the cassava roots to dry in the sun. When dried, the cassava is pounded to make flour. In the very early morning we hear a heavy pounding all through the village. It is the women pounding cassava to make flour.

When she makes cassava pudding of the flour, Maru puts in several things to make the pudding taste good. She puts in pumpkin seed, red peppers, and some pounded leaves mixed with oil from palm nuts. This oil is somewhat like the "butter" which the Punans get from a tree in their forest. These good tasting things that Maru puts into her pudding are what salt and butter and pickles are to us. They make the cassava taste better and they are very useful as food. The oil is just as useful as butter. Maru makes pancakes and other things with cassava flour.

During the day the people eat only enough to keep hunger away—a few peanuts or a banana or a piece of yam. They eat the main meal of the day in the evening when the work is done.

1. Name five kinds of seeds the Congo women plant in their gardens.
2. Why don't these people put food away for winter use?
3. Why do plants grow quickly in the forests near the Equator?

The Garden-Farmer Has Troubles

It is too bad that elephants and wild pigs think that garden vegetables are the best of food. A hungry elephant will sometimes walk many miles in the night to eat up a few gardens. Wild pigs come sneaking through the bushes to eat beans. With their stout noses they also root up sweet potatoes.

These villagers would enjoy having strong wire for fences ten feet high. But they do not have a fence of wire. Therefore the men must take turns watching the gardens to keep the wild animals away. Sometimes for months they watch the gardens every hour of the day and of the night.

Watchers can keep elephants away, but they cannot stop soldier ants. One day a boy runs through the village.

"The ants are coming! The ants are coming!" Every person in the village prepares to move and to move quickly. The soldier ants are coming out of the forest in an army. There are thousands and thousands of them. They cover the ground. Nothing can stop them. They keep on coming. The people run. The ants enter a house. These ants eat meat

More ivory comes from Africa than from any other part of the world. Elephant tusks supply most of the ivory, though the tusks of walrus and whale are also a source of supply.

and they would be very glad to eat through an African village.

When the ants leave the houses, there is not left in them any meat or bugs or worms, or any other living thing that cannot fly. The next day the ants may be gone and the people may come back to a clean village.

Not long ago an American hunter went to the African forest to get wild animals for a zoo. When he was almost ready to come home, the soldier ants came to the village where the animals were waiting in cages. The people could run, but they could not take the animals. They forgot to open the cages where the animals were. When the ants left, there was a clean skeleton of a baby hippopotamus, and only the bones of deer and many other animals.

The Congo village farmers have one trouble you never thought about. They often have to move their villages. A Congo forest garden will give only two or three good crops. Then the people clear another place nearby and make a new garden. In a few years all the good garden land near a village has been used. The people then save themselves a long walk to their gardens by making a new village in another place, nearer to the new gardens. One old man said that his village had stood in seven different places.

"Yes," said he, "seven times we have moved our village to another place in the forest."

"Did you like that?" he was asked.

"No, we did not like to move," said he, "but we liked the good, new garden spot, and we liked to live near the gardens. It did not take us long to build a new village."

1. Why do you think the ants that bother the villagers are called soldier ants?
2. The forest garden will give only two or three good crops. Can you give the reason for this?

Products of Forest and Stream

Besides hunting, and clearing ground for gardens, Imbo and the other men make nets and basket traps for catching fish. They get a great many fish from the streams.

Sometimes they catch the fish at night by the light of a torch. The light makes the fish come to the top of the water. It is great sport to catch fish with a spear.

In some parts of the forest an elephant hunt is one of the greatest happenings in village life. To catch big animals like the elephant and the hippopotamus, the men join together and dig a large pit. The people are glad when an elephant is caught, because a dead elephant does not eat gardens any more. When an elephant is killed, the people build a big fire and keep it going all night. They beat the drums, sing songs, and dance. When they have eaten as much meat as they want, they smoke what is left. Smoked meat can be kept without spoiling.

If the elephant has tusks, the tusks can be sold for money. Elephant tusks are ivory. Ivory can be carved into many beautiful objects. We use ivory also for piano keys, for the handles of knives, and for other things.

Some of the trees of the forest give the Congo people very useful things. There are many kinds of trees that we do not see in the United States. One tree is called the raffia palm. Long ribbon-like fibers come from its leaves. Imbo uses this raffia for making fishing lines and for string. We use raffia as string, too, for tying things and for making bags.

The most useful tree is the oil palm which grows in many parts of the hot forest in Africa. Imbo has no cow to give milk or cream to be made into butter. The bacon of wild pig is scarce. But the oil palm gives the people a food that is like the fat of butter and of bacon. It might be called their butter and bacon tree.

The oil palm bears big bunches of fruit somewhat like the fruit of the date palm. When the fruit is ripe, men and boys climb the trees and cut down the big bunches. The women and girls pick off the fruit and put it into wooden troughs. They trample the fruit with their bare feet to crush it. Then they boil the crushed mass in water. The oil comes out of the fruit and floats on top of the water. It is easy to skim the oil off the water. A good housekeeper always has a big gourd full of palm oil ready for use. Palm oil is an important food for people in hundreds and thousands of villages in the African forest.

Palm oil is useful in another way—it can be traded for goods. We remember the packages of goods that came to the forest by ship and by carrier. How do the people of Imbo's village pay for the cotton cloth, the copper wire, and the other things that they buy from Europe and America? The oil palm gives the answer. The people sell palm kernels.

The palm kernel is a seed or nut inside the palm fruit. There is oil inside the palm kernel. You see this wonderful oil palm gives two kinds of oil. One kind is taken from the fruit itself. The other kind of oil is in the seed. The seed has a hard shell. Inside the shell is a kernel and in the kernel there is oil.

When the forest people want to buy some of the white man's goods, they crack palm nuts between two stones and take out the kernels. When they have a lot of kernels ready, they carry them to some place where a trader will buy them, or will exchange the palm kernels for goods. Palm kernels are their money.

In some parts of the African forest men and women have to carry palm kernels along the forest paths for a week, or even two weeks, to get them to market.

Many tons of palm kernels and palm oil go down the Congo River on steamboats. When the kernels get to Europe, they are crushed by heavy machinery. This squeezes out oil which is much like cottonseed oil. The people of Europe use the oil as food. But the people of the African forest eat more of it than the people of Europe do. If there is plenty of palm oil and the people have good gardens, they have all the vegetable food they need.

1. Give three reasons why the forest people are glad to kill an elephant.

2. What is the "money-crop" of the African forest people? How do they make use of this money?

Rules and Fun

People who live near one another in villages and who have gardens must have many rules for living together. The Punans who camp in the forest do not need so many rules.

The village people have rules to tell where one may make a house, or clear a place in the forest for his garden. There are rules for settling quarrels, and rules for many other things.

Imbo is the head man of his village. Every African village has a head man, or chief, who is leader of the people. The

The middle cluster of oil palm nuts shows how they grow on the tree—a big ball with many nuts hidden in it. At the left is a basket of picked nuts. At the right is a pile of kernels, one of which has been opened. The oil palm tree grows from 20 to 30 feet high with a crown of large leaves at the top.

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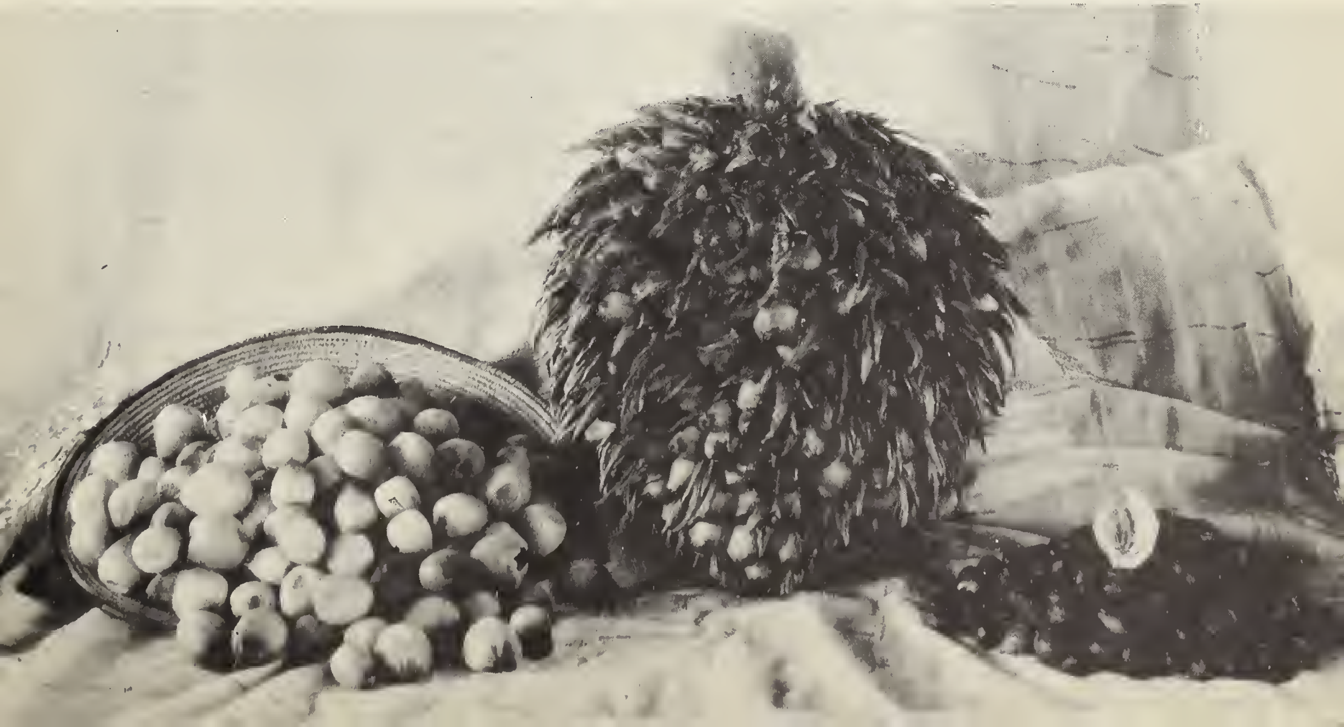

Consul General of Belgium

Some Africans now wear the type of clothes we wear, or use materials from our country. What kind of clothing do you think would be most comfortable in the hot African climate?

head man must know all the rules of the village and be able to have the rules obeyed.

Before anyone can be made head man, his neighbors must be sure that they can trust him. This is very important.

Every village boy hopes to be head man some day. Where does the boy learn the things he needs to know? There are no books. School in most of the African villages is much like school in the Punan camp. Sons learn from fathers and other men. The children of the village also learn by doing things for themselves.

These forest people delight in having a trial. Perhaps two men have had a quarrel and one has hurt the other. The head man will hold a trial to decide what should be done about it. Each of the two men who are to be tried gets a good speaker to speak for him. At the trial speeches are made and stories are told.

No person works on the day of the trial. People even come from neighboring villages. It is almost like a big neighborhood party or picnic. A trial is held in the village market place and may last for several days. There are many rules about how a trial must be held. We are told that much of the method by which we conduct courts in the United States was learned from the African forest people and came to us by way of Europe.

Each village has a market. Near sunset the people go to this open space. Each person puts what he has to sell, or trade, on the ground where others can see it. There is plenty of talk and laughter.

"Anybody want to trade a gourd full of peanuts for two big yams?"

Consul General of Belgium

Some African children attend school to learn reading and writing, and better ways of using their country's resources. After they finish school many return to their villages to teach others.

"I'll give a nice bunch of bananas for some dried fish!"

The open space where the market is held is also the meeting place for the village. Congo people like to be with one another. In the evening they gather around a fire in the open space. Some play musical instruments which they themselves have made. Others exchange bits of news or tell stories.

Many of their stories are about something that happened long ago. Other stories are made up just for fun. We have a book of these African stories that tell about Uncle Remus and Brer Rabbit. A man in the United States wrote the stories after hearing Negroes tell them. You will enjoy the Brer Rabbit stories.

The Congo people wear very few clothes. The weather is so warm that clothes are not needed. In a warm rain, it is better for the body to be almost bare. Wet clothes would be bad. But when there is a dance or a trial, the people often wear belts or skirts which they make from the soft inner bark of certain trees. Congo people are very fond of jewelry. Both men and women wear necklaces and rings. They like to have bracelets and anklets of copper wire on their arms and legs. On special days the men wear necklaces of leopards' teeth or pigs' teeth. The poorer people use seeds and beads for their ornaments. Many make ornaments of the feathers of birds and the skins of animals. When they have money, many of them buy bright-colored cotton cloth made in Europe.

1. Why do people in villages, towns, and cities need rules for living together?

2. From where do you think the Congo people get copper wire to make jewelry?

3. Name four ways of having fun in this forest.

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Airplanes often land on rivers in Africa, for it is difficult to build airfields in the jungle. In what ways can the airplane help to improve the lives of jungle people?

New Ways of Forest Living

After the African forest people learned to make iron, they had better knives, axes, hoes, and spear points. These tools of iron have changed some of the forest ways.

Now that the white man is going to the hot, wet forests with steamships, trains, trucks, and airplanes, more trade goods are going to Africa all the time. This is causing some of the forest folk to make changes in their ways of living.

Before the steamboats began to come up the river, there was not much trade among the villages. The people of one village grew vegetables for themselves and made their own palm oil. They hunted their own meat and built their own houses. They made their own clothes and their tools and ornaments. The people of the next village did the same. If two groups of people have the same kinds of things, they do not trade with each other very much.

Now steamboats go up and down the river, and there are changes in the forest villages. Long lines of carriers make journeys through the forest, taking trade goods to the steamboat landings at the river bank. Other people come in canoes on small streams. They bring ivory, palm nuts, palm oil, cacao beans, and other things that they find in the forest or grow in their gardens.

They sell these goods to men who have trading posts near the steamboat landings. Here the Negro man may buy cotton cloth, overalls, shirts, knives, hoes, clocks, and many other things that come from factories in Europe and the United States.

Other changes are being made in the Congo forest. There are several railroads in the forest now. New roads for trucks are being built. New landing strips for airplanes are being made. Most of the changes are near rivers and streams. But in villages that are a long way from rivers or railroads, there has not been much change.

There are hundreds and hundreds of villages of these forest garden-hunting people in Africa, in South America, in southern Asia, and in the East Indian Islands. Over and over again the traveler will see bananas, cassava, yams, beans, and other vegetables in these forest villages. The garden people have to learn many things about forest farming that the hunting people like the Punans do not need to know. Even if the Africans did not trade with people who make things by machinery, the garden-hunting way is a very good way to make a living in the hot, wet forests.

1. What is the chief reason that causes people to trade goods?

2. Why do you think most of the changes in forest living are near rivers and streams?

Some Things to Do

1. Use each of these words in a sentence to show its meaning—

yams
cassava
gourds
raffia

2. You have read about garden-making in the Corn Belt of the United States, and about garden-making in the Congo forest. Write a paragraph telling how garden-making differs in these two places.

3. Weaving mats or bags of raffia is interesting and useful work. If you do not have raffia, you can twist or fold crepe paper to use in weaving. Study the designs on the mats in the pictures before you plan your work.

4. Collect pictures for your scrapbook of the things you read about in this chapter.

5. Pretend you visited an African village. Write a letter to someone at home telling what interested you most.

6. Find a make-believe story such as is told around the evening campfire in the Congo forest. Read it for fun.

A Short Quiz

Copy these sentences, filling the blanks with the correct words—

1. The Congo forest is in the continent of ______.
2. An enemy of horses and cattle, the ______ ______ lives in the forest.
3. The forest people use ______ for making dishes, buckets, and drinking cups.
4. An important kind of food in the Congo is the ______, from which pudding is often made.
5. One of the largest animals in the forest near the Equator is the ______.
6. Elephant tusks are valuable because they are ______.
7. Forest people in Africa use ______ ______ in place of bacon and butter.
8. The ______ has helped to bring changes in the ways of forest living.
9. One way in which the garden-people of Africa differ from the hunting-people of Borneo is that the garden-people live in ______.
10. Messages are sent from village to village through the forest by ______.

Galloway

Chapter 28

The Plantation People

The Rubber Plantation

The third way of making a living in the hot, wet forests is to work on a plantation. A plantation is a large farm where people live and work. They grow only one or two crops. These crops are sold. The people use the money to buy what they need. This, you see, is very different from the other two ways of living in the hot, wet forests.

Rubber is one of the important plantation crops. Every day most of the people in our country see and use rubber. Every boy and girl in your school has seen and used rubber. Rubber that comes to us from the hot forests is used in making a bicycle tire, an automobile tire, a garden hose, rubber shoes, and the rubber on the end of a pencil. But we use rubber in many, many other ways.

The first European who came to North America found the people in the West Indian Islands playing with a ball made of something they called vegetable gum. This ball bounced so far that it seemed to be alive. It was a ball of what we now call rubber. How did this material come to be called rubber? It was because the first use we made of it was to rub out the marks made by lead pencils.

For more than three hundred years after we first had rubber, we made very little use of it except to rub out pencil marks. Then some men started working with rubber in a factory. They learned how to use rubber in making material for raincoats. They also made tires that could be filled with air. These tires made bicycle riding pleasant. We soon had rubber tires on many bicycles and then on many automobiles. That made us want a lot of rubber and want it right away.

Rubber is found in several kinds of trees and vines that grow in the hot, wet forests. When we began to use rubber tires, nearly all the rubber in the world came from the forest that reaches almost all the way across South America. Wild rubber trees are scattered here and there in many parts of this large forest near the Equator.

When the price of rubber rose from a few cents a pound to fifty cents, and then to seventy-five cents a pound, hunting rubber became a good business. The people went through the forests hunting for rubber trees and tapping them. To tap a rubber tree, a cut is made in the bark with a sharp knife. A white juice, called latex, runs out and is caught in a cup. When the latex is dried in the proper way, we call it crude rubber. Crude rubber is used by the man who makes rubber goods.

The factories that made bicycle tires and automobile tires used so much rubber that the price reached a dollar a pound. "Rubber, rubber, where can we get rubber?" asked the factory owners.

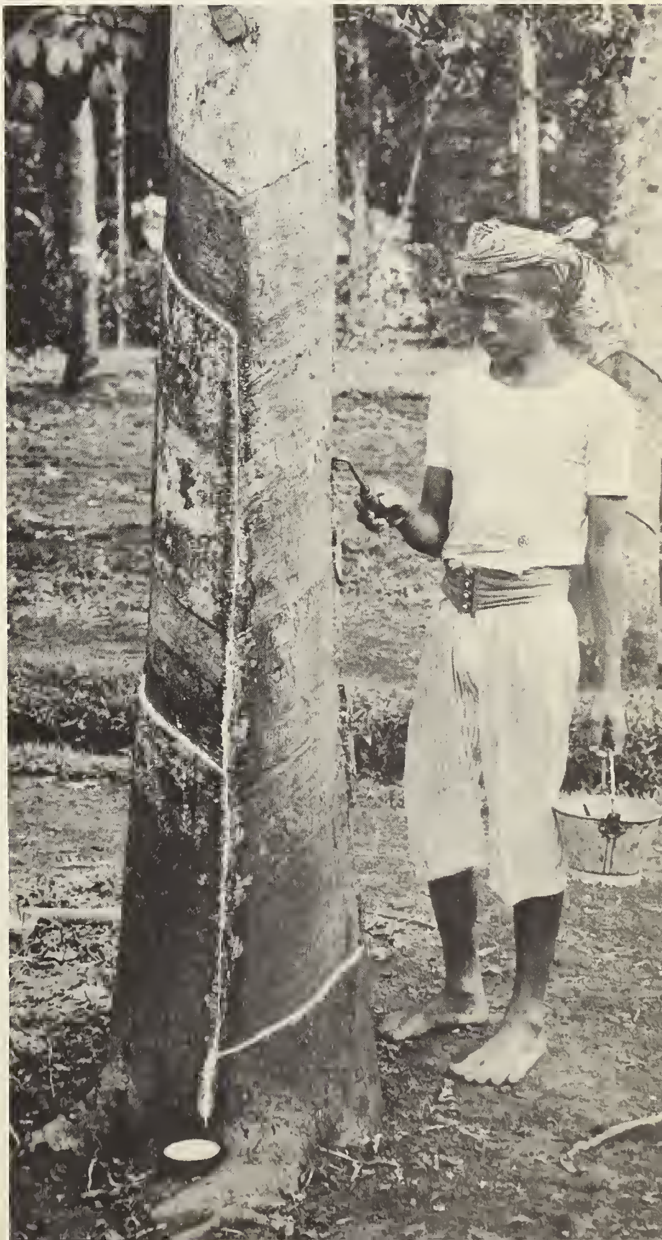
It was not easy to get enough rubber. The wild rubber trees in the forest grew far apart. It was hard work to gather wild rubber. People in boats went up the Amazon River looking for rubber trees. They made camps along the river banks. From these camps the rubber hunters made trips into the forests. They had to cut paths to get through the thick jungle. They would find one rubber tree, then make a long path to another rubber tree, and another long path to another rubber tree. The price of rubber was so high that the rubber hunters got all of the latex from every tree. That killed most of the trees.

Then someone said, "Why not have orchards of rubber trees?"

People took the seeds of the Amazon rubber trees to the East Indian Islands near Singapore. Singapore is the chief city of the Malay Peninsula. There were more people to do the work in the East Indian Islands than there were in the

A rubber tree must be tapped very carefully. If the cut is too deep, it injures the tree, and if it is too shallow, not enough latex flows. Tapping is done in the early morning because the flow is greatest then. Why is the rubber tree important to people in most parts of the world?

Galloway



Amazon Valley. Shiploads of people came over from India. They worked a year or two on rubber plantations near Singapore. Then they went back to India and others came to take their places. Shiploads of Chinese came from China to work on these plantations. They worked for a time and then went back to China, while other Chinese came to take their places.

Men from Europe and the United States showed these people of Asia how to make rubber plantations. First they cut down the wild trees of the forest and planted little rubber trees. They did this in much the same way that orange growers plant orange trees, and apple growers plant apple trees. They did not plow the ground when they planted the rubber trees. They took axes and knives and cut down all the little bushes that had started to grow. That kept the rubber trees from being robbed of their plant food and robbed of their sunshine.

When young rubber trees are six or seven years old, they are large enough to be tapped. The plantation people see to it that the trees are not tapped too much. With this kind of care, the trees give rubber every year, and also grow bigger and bigger. Years ago there were many plantations and we had plenty of rubber for tires and all other uses.

Ships have carried the rubber from Singapore to Europe and from Singapore to our country. Hundreds of ships carried rubber from Singapore to the United States every year.

There are now rubber plantations in some parts of the African forest. There are some in the South American forest. But there are many more in the East Indies and in the Malay Peninsula.

When we could not get rubber from the plantations of the Malay Peninsula and the islands near it, we had to make rubber in factories. We call it synthetic rubber. Synthetic means put together. It is really wonderful to see what strange things the men we call chemists use to make rubber.

One of these materials is petroleum. Petroleum comes out of oil wells deep down in the rocks. From petroleum men make gasoline and kerosene and the heavy oil that we put on machinery.

Chemists take the same kind of petroleum and make rubber from it. In another factory the chemists take wheat or corn, or potatoes, and make rubber from them.

Synthetic rubber costs more than rubber from trees. The two kinds of rubber are not exactly alike. We may have both kinds from now on. There is room for many more rubber plantations in the hot, wet forests.

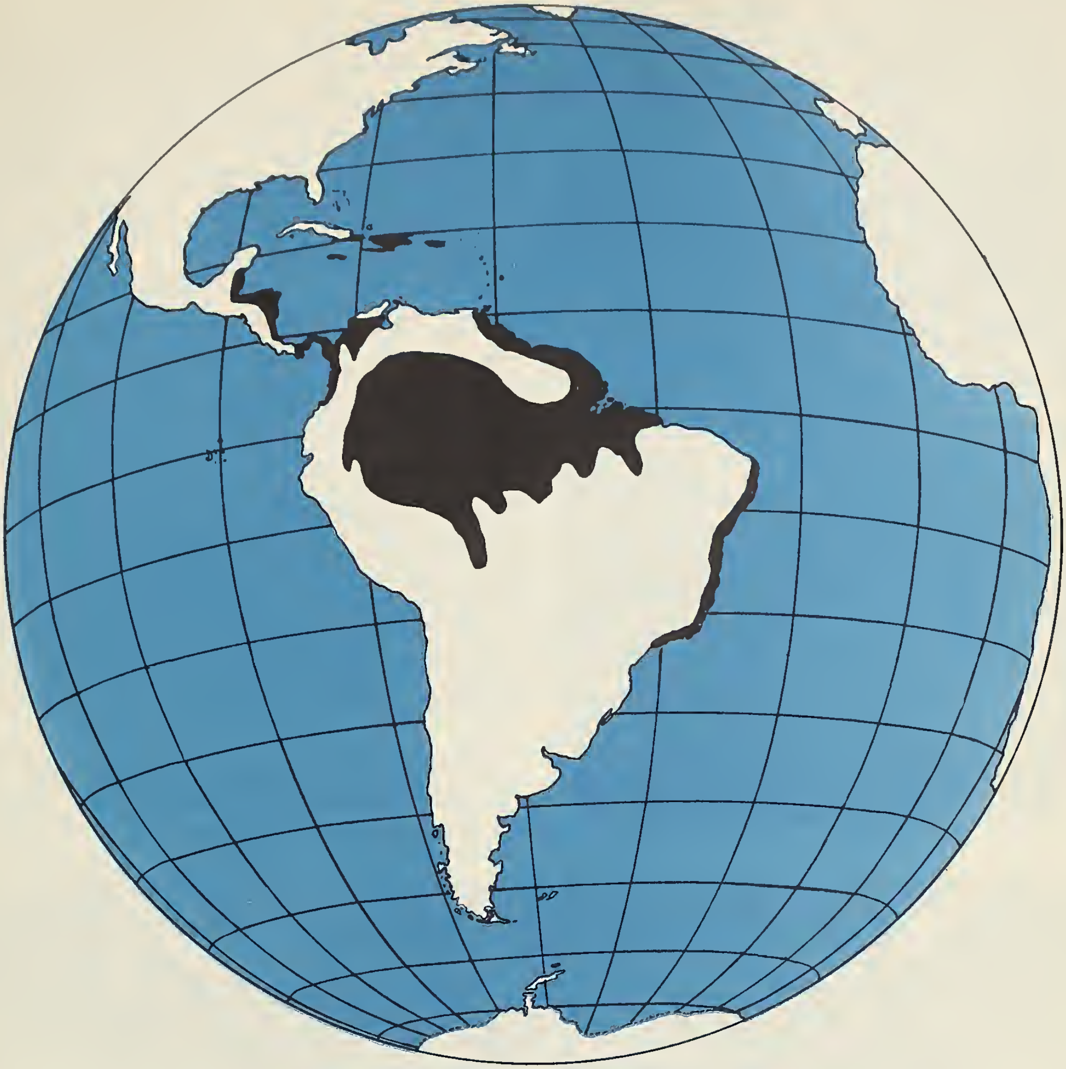
1. Why were rubber plantations started in the East Indian Islands?

2. Make a list of things in your classroom that are made of rubber.

Cocoa and the Cacao Plantations

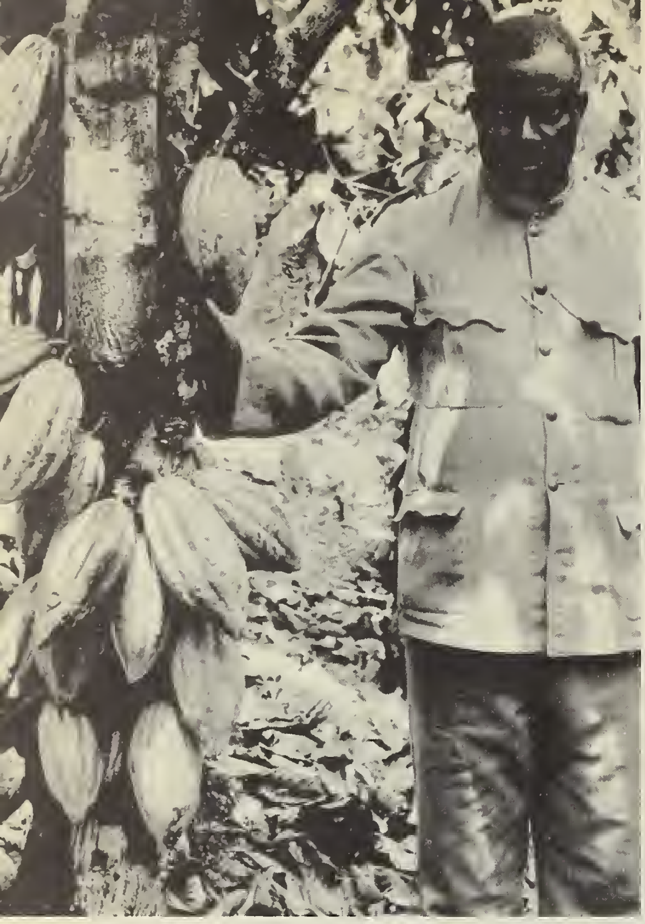
When the men from Europe first came to the hot, wet part of North America, they found the Indians in the country we call Mexico drinking a dark brown liquid. The Europeans tasted it. They liked it. They said, "This is the food of the gods!"

The Indians were drinking cocoa. You have drunk cocoa, or you have eaten chocolate bars or chocolate candy. Both cocoa and chocolate are made from the seed of a small tree called the cacao tree. The tree grows in hot, wet forests. It likes the shade, so the planter grows the cacao tree in the shade of other larger trees. The cacao tree is only 20 or 30 feet high.



Hot, wet forest lands in Central and South America are the homes of many rubber, cacao, and banana plantation workers. Why is there summer weather during all the year in these lands?

United Fruit Co.



Getting ready for a plantation of cacao trees is much like getting ready for an African forest garden. The small trees and bushes are all cut away, but some of the big trees are left standing and alive. The big trees are left to shade the little cacao trees.

The cacao tree never sees a plow. Men with big knives cut down the big weeds, the bushes, and the little trees that try to grow up among the cacao trees.

The fruits of the cacao tree are somewhat like cucumbers. When they turn brown, the cacao planter knows it is time to pick them. He then chops the fruit open with a big knife, and picks out the seeds, or beans as they are called. They are about an inch long.

Notice how the cacao pods grow from the trunk of the tree. After the pods are picked, they must be opened and the beans removed.

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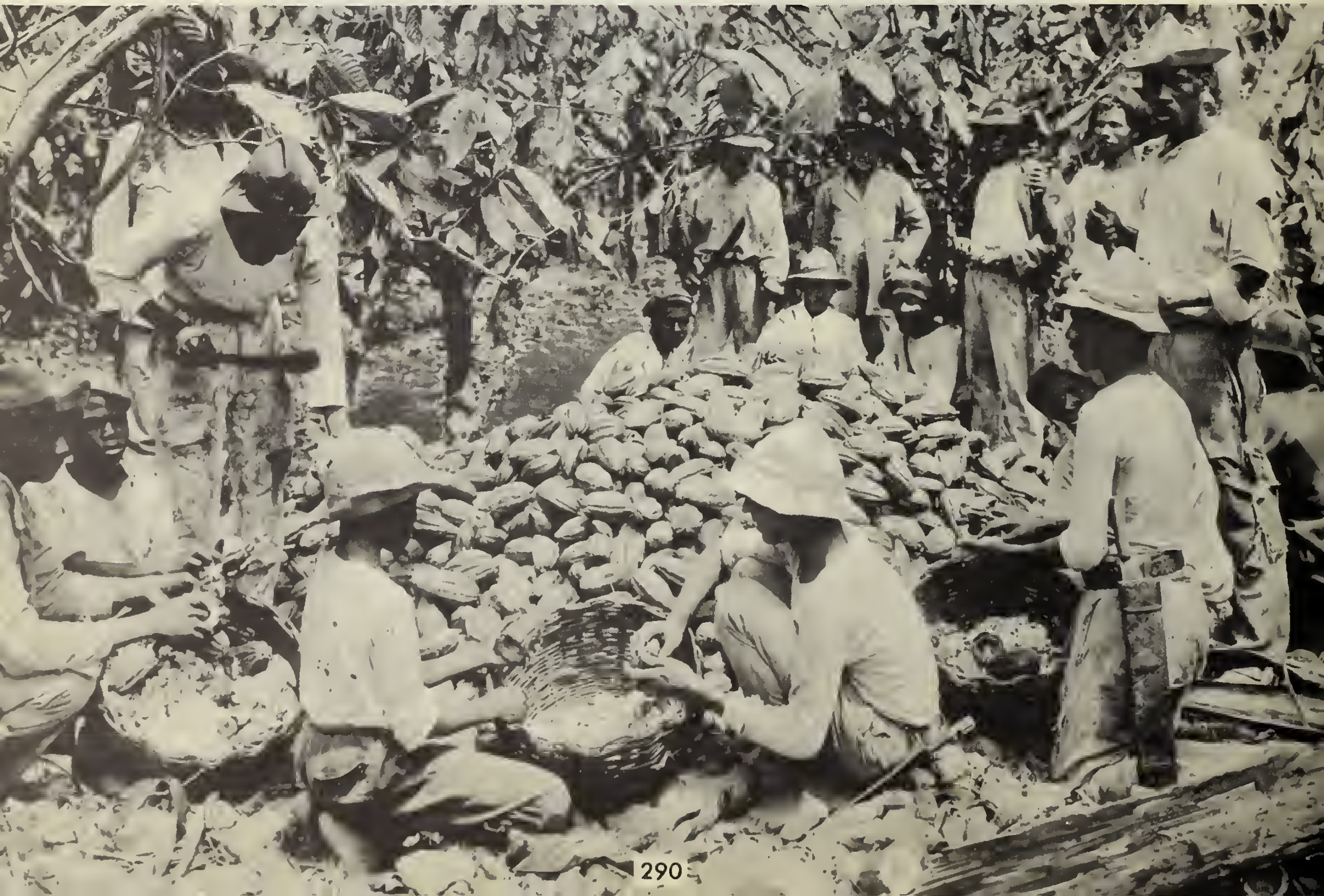


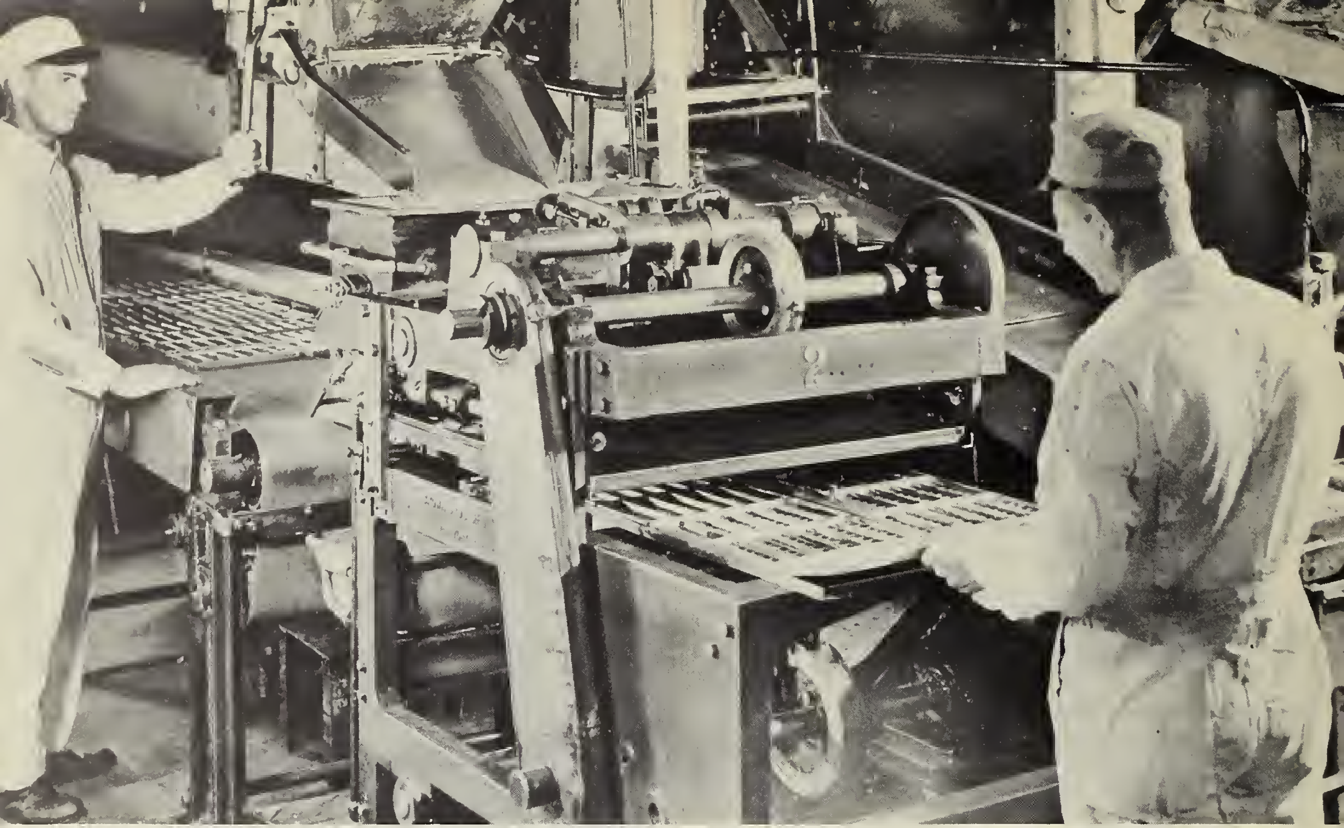
After the seeds are dried in the sun, they are as dry as the dry beans which we buy in the store, and they will keep for a long time.

Sometimes the people in the cacao country pound beans in a mortar to make cocoa or candy. But most of the beans are put into bags and taken down to the sea. Ships carry them away to the United States and to Europe. We have many cocoa factories in this country. When the cacao beans get to the cocoa factory, they are put into a whirling machine and ground into fine powder. Cocoa is just cacao beans ground fine. Perhaps you have seen some of this brown powder.

For a long time most of the cacao plantations were in the hot forests of

The cacao beans dry in the sun for about three days. Workers stir the beans to help them dry evenly. When they are dry they can be shipped.

Makers of Nestle's Choc. (below), Willard Hawes and Co. (right)



Makers of Nestle's Choc.

When they arrive at the factory the cacao beans are roasted to improve the flavor. Grinding and heat make them into liquid chocolate. This is poured into steel molds and chilled to make candy bars.

Ecuador, a country on the western coast of South America. Then the people in Brazil began to grow cacao. Brazil is a very big country. Brazil soon shipped more cacao beans than Ecuador did. Then somebody carried cacao beans to Africa. The hot forests in Africa were very much like the hot forests of Brazil and Ecuador. The cacao beans sprouted in Africa, and grew to be trees that bore good beans.

It is easy for the African patch farmers to grow cacao. They go into the forest, cut down most of the trees, but leave a few of the big trees alive for shade. They plant a few cacao trees beneath these tall forest shade trees. The family may have one tree, or ten trees, or a hundred trees. In a few years, the people have some flat baskets of beans drying in the sun beside the house. If it rains, they pick up the trays, carry them inside, and thus keep the beans dry. In a few weeks, the family has some dry beans to sell.

Perhaps the beans are carried on someone's head for two or three days, or for a week before they can be sold. If the village happens to be near a river, a steamboat may take the beans down to the sea. You remember that there are some railroads in the African forests, and also some roads for trucks. The cacao beans go down to the sea on trucks, trains, and river boats. They also go on human heads. When the beans have reached the seacoast, ocean steamships carry them to the cold countries where cacao trees cannot grow.

Most of the cacao that is used in Europe and America now comes from Africa. The villagers who grow it still live in grass huts. They still have their gardens to give them most of their food,

Galloway

Bananas are another good food grown by the plantation people. Banana trees are usually 10 to 20 feet high. A bunch of bananas like this one will weigh from 50 to 150 pounds.

but they can buy more things than they could before they had cacao beans to sell.

Sometimes they buy radios, clocks, canned meat, ready-made clothes, and many other things that we have in our stores. Some people from our country and from Europe have gone to this part of Africa to be doctors and teachers. Some of their schools use a geography book like this one.

1. Name two countries in South America that have plantations of cacao trees.
2. Why do you think the cacao grower can have a money crop from one tree, while the fruit grower must have many trees?

Banana Plantations

The things we get from the hot, wet forest show that this land is very useful indeed to the people in the United States. We all use rubber in many ways. Nearly everyone likes chocolate in many forms. And is there anyone who doesn't like to eat a banana? Bananas, too, come from the hot forest lands.

Balls of crude rubber can be kept easily for a year or two. Sacks of dry cacao beans will keep for months in almost any shed if it is dry there. But bananas? In only a few days a banana becomes too soft to be eaten. Many people must work in a hurry to send bananas from the hot lands near the Equator so that we can eat them while they are still good. We might almost call the bananas the "hustle" fruit.

Now suppose we are in a town or city on the eastern shore of Central America. Central America is the southern part of North America. It is in the narrow part near South America.

The manager of a banana plantation lives in this town. He is an American,

Middle American Information Bureau

Bananas grow high above the ground, so the workers must use a knife on the end of a long pole to cut down the bunches. As soon as the plant bears fruit it dies, but another grows from the shoots to take its place.

and he will show us how bananas are grown. We get into his car. It seems to be an automobile. It has an automobile engine, but its wheels are like the wheels on a railway car. This car does not run on a road. There is no road in the forest near this town. Instead of running on roads, the manager's car runs on the railway track. The railroad belongs to the company that owns the plantation. It was built to carry bananas from the plantation to the town. We ride out of the town and into the forest.

We ride past palm trees and other kinds of trees with vines hanging from them. The forest is so thick that it would be very hard to walk there. It is much like the Borneo Forest and the Congo Forest.

We see a monkey scamper up a tree. A red and green parrot flies over us as our little car speeds along between the green walls of leaves.

Now the car runs out of the forest and into the banana plantation. Banana plants are on both sides of the track—nothing but banana plants in long rows. Bunches of bananas hang from most of them. Some of the plants are little ones that have just started to grow. Some are half-grown, some are full-grown.

Men with long knives are cutting bunches of bananas. A mule comes along with two bunches balanced across his back. He is bringing the bananas to our railroad. The mule driver piles the bunches of bananas beside a freight car that is waiting. The bananas will be put on a ship that came to the town this morning. In the banana business there is no time to lose. The ship must be loaded in a hurry to take the bananas to the United States.

The plantation where men are now so busy gathering bananas was a tall,

Triangle

Mules carry the bananas from the spot where they are picked to the waiting railroad cars. Then they are hurried to the ships. Why is so much speed necessary?

tangled forest two years ago. There was not a single banana tree. There was not a house within two miles. The monkeys and parrots lived there with no one to disturb them. Then a hundred Negro men came. They were paid by some men in the United States. These Americans formed a banana company. They wanted to have a banana plantation. They paid the men to build a village for themselves and their families. When this was done, the men went to work in the forest. They chopped down the trees and the vines and the bushes.

That is the way men make a banana plantation. They chop down a forest, plant banana roots and keep the bushes and weeds and little trees chopped away. In twelve or fifteen months the banana plant is 15 or 20 feet high and has a bunch of bananas ready for you to eat. By this time the banana company has built houses in the town and a wharf where ships can load. It has built the railroad from the plantation to the wharf. It has also built tram lines through the plantation to carry bananas to the railroad.

The men we saw in the plantation started cutting bananas at daybreak. In the evening a trainload of bananas runs up to a wharf beside the ship. A barefoot Negro takes a bunch of bananas from a freight car, puts it on his shoulder, carries it to the ship, and lays it on the banana loader. Another man follows him and does the same thing—another, and another, and another, until fifty men are going around and around, each carrying a bunch of bananas from car to ship. Each man lays his bunch on the banana loader. This machine lifts the bananas up over the ship's side and lets them down into the ship. Inside the ship other men are busy packing away the bunches of bananas. They place each bunch carefully so that it will ride safely.

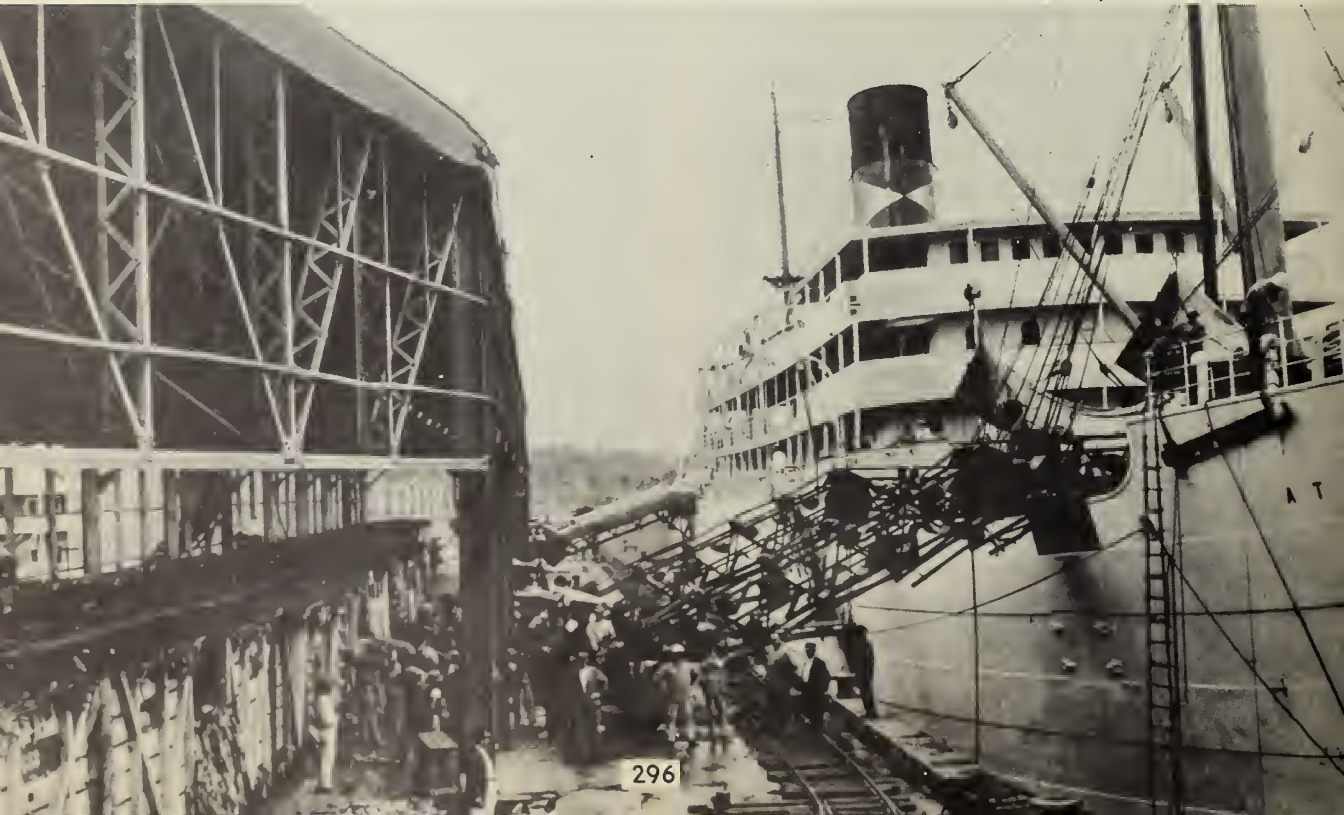
Darkness comes. Lights are hung up and still the string of men keeps carrying bananas from car to ship. The little locomotive keeps on pulling empty cars away and bringing full cars back. Bedtime comes, but the string of men keeps on carrying bananas from car to ship.

All night long the men keep walking around and around, carrying bunches of bananas from car to ship. It is very quiet. Bare feet do not make a noise. At sunrise the ship pulls away from the wharf with fifty thousand bunches of bananas packed inside. The ship is cooled by machinery which works like that in a refrigerator. If the ship were not cooled, the bananas would be too ripe by the time they reached New York or Philadelphia or Boston. On the way to the United States men watch thermometers night and day to see that the bananas are kept at just the right temperature. If the weather is hot, the bananas are cooled. If the weather gets cold, the bananas are warmed.

In a few days the steamship has taken the bananas from warm Central America to the United States. It is winter and the American weather is freezing cold. Now the men who handle the bananas are careful to keep them warm. The bunches are very quickly

The banana loader can carry several bunches of bananas up to the ship at once. Workers must handle the bananas very carefully because bruises will cause them to spoil before they reach the market.

From the Collection of J. Russell Smith



loaded into heated trucks and heated railway cars and hurried away as fast as trucks and trains can go. They will be carried to a hundred towns. Perhaps you may eat some of them. The bananas are green in color when they go into the ship. Most of them are yellow when they arrive at the store where we buy them.

The people in banana towns on the coast of Central America often work all day and all night when the banana boat needs to be loaded with freshly cut fruit. When the ship sails, these people take a long sleep. Then most of them go back to work, taking care of the plantation.

They all get very busy again when a radio message tells the manager, "Ship So-and-So arrives tomorrow night. Need thirty thousand bunches."

Most of the plantation workers live in wooden houses. Some of them live in grass houses like those their people had in Africa. Some have gardens, but they all work for wages and buy things at the store as we do. The banana ship brings many boxes and bundles of things for the stores in "Banana Town."

Now you see that growing bananas and growing cacao beans are very different kinds of business.

Men have tamed many plants and grown them in gardens or fields. Some plants have been tamed for a very long time. Some have been tamed only a short time. The banana plant has been grown in the hot, wet forests for a long time. The banana plantation is something new. The rubber tree has been tamed only a short time.

Men are taming new plants all the time, and taming many more useful trees that grow in the hot forests. There are many trees in these forests that produce fruits and nuts that you never saw or heard about. You might be glad to have them. These trees may be grown in

As the ships loaded with bananas travel to markets in North America or in Europe, workers watch the thermometers in the storage rooms. Temperatures for bananas must be regulated very carefully.

United Fruit Co.

plantations some day, and the airplane can bring the fruit and nuts to us quickly. There is plenty of room for plantations. There are plantations in the hot, wet forests of Central America, of South America, of Africa, of Asia, and of the East Indian Islands which lie near Asia. But all of the plantations together take up only a few tiny corners of these vast forests. Most of the hot, wet forests stand waiting for men to use them.

You soon may see and use many new products from these forest lands. Better still, you may have a chance to see them grow or perhaps have a job in the hot, wet forest where nature gives so much sunshine and rain, and makes things grow so rapidly.

1. Locate Central America on a globe or a map. Why do you think it is called Central America?

2. Arrange in correct order these steps in the banana business—
   - a. Plant banana roots.
   - b. Build railroad and wharf.
   - c. Chop down a forest.
   - d. Cut bunches of bananas.
   - e. Keep in correct temperature.
   - f. Unload into trucks and trains.
   - g. Load and pack in ship.
   - h. Sell in markets and stores.

Some Things to Do

1. Talk with your classmates about these words. Learn to write them.

plantation petroleum
latex cacao
synthetic

2. Make up five questions about plantations to ask your classmates. Be sure you know the answers to your questions.

3. Study closely pictures of rubber trees. Draw a picture of a rubber tree and write a paragraph explaining how latex is taken from it.

4. Write the life story of a banana. Begin with its growing in a bunch on a plant and tell what happens to it up to the time it is eaten.

5. Collect pictures on rubber, cacao, or bananas to add to your scrapbook.

A Short Quiz

Each sentence below has several endings. Copy the sentence and complete it by choosing the best ending.

1. People in the hot, wet forests need houses for
   - a. protection from wind.
   - b. shelter from rain.
   - c. shade from hot sunshine.
2. African patch-farmers move to plant new gardens because
   - a. they get tired of living in the same place.
   - b. wild animals destroy their crops.
   - c. the soil wears out.
3. Rubber and cacao are easy to ship because
   - a. many people want to buy them.
   - b. they can be stored for a long time.
   - c. they can be carried on any kind of boat.
4. A railroad is built from the banana plantation to the wharf
   - a. to get the bananas to the ship in a hurry
   - b. to take the men to their work.
   - c. because the forest is too thick to walk in.
5. Plantations in the hot, wet forests are useful to the people who live there
   - a. because they like to work for other people.
   - b. because they can buy what they need with the money they earn.
   - c. plantation owners keep the land clear.

Stories You Will Enjoy

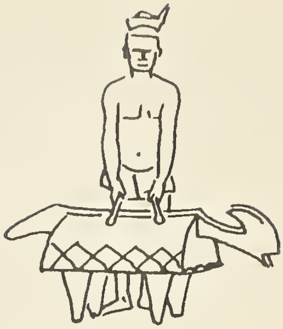
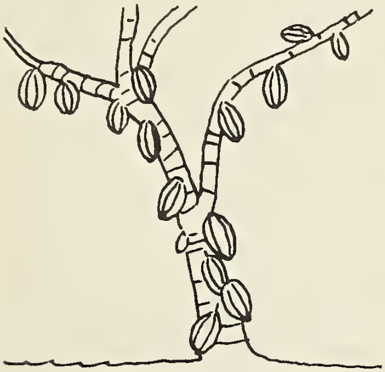
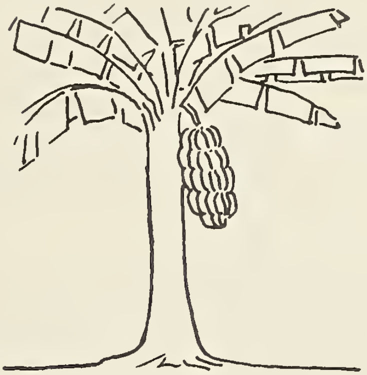
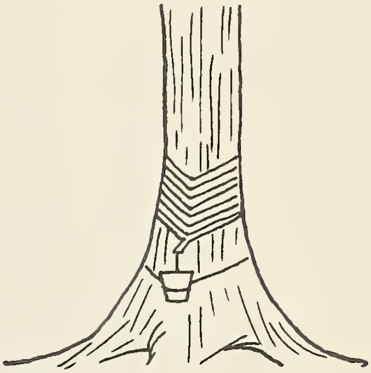
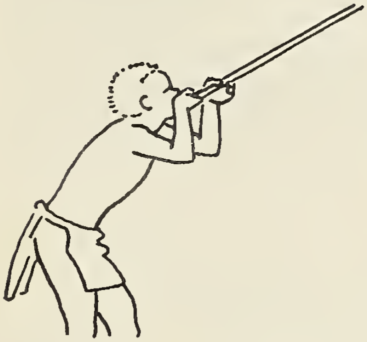
Second Jungle Book by Rudyard Kipling—Doubleday

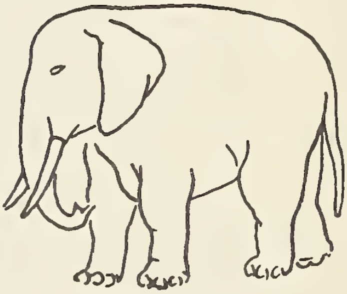
A Jungle Picnic by Clifford Webb—Warne

At the Jungle's Edge by Mrs. Melicent Humason Lee—Crowell

Rubber Book by William Clayton Pryor and Mrs. Helen Sloman Pryor—Harcourt

Children of Banana Land by Mrs. Melicent Humason Lee—Crowell



A Summary

1. Write the best answer you can to these questions—

   a. Why is the roof the most important part of the house in the hot, wet lands near the Equator?
   b. Why are rivers used as the chief highways in the forests?
   c. How do most of these forest people get their food supplies?
   d. What examples can you give to show that forest people use things nature has provided?
   e. Why are there "human freight trains" in the forest?
   f. How do jungle people send messages?
   g. Three kinds of trees are shown in the drawings on this page. Name the product of each tree.
   h. Why is there summer weather all the year on lowlands near the Equator?

2. Test what you have learned about Our Neighbors Around the World by writing about each of the 10 kinds of land you studied. Use the following items to guide you—

   location
   weather
   animals
   plants
   food
   clothing
   shelter
   transportation

Index and Glossary

An index and glossary section is included in this book to help you in three ways—

1. The subjects are listed alphabetically, with their page numbers, to tell you where to find things in the book.
2. The words are marked to help you pronounce them correctly.
3. The meanings of the words are given to help you understand their use in your study of geography.

The key listed below will show you how to pronounce words in "Neighbors Around the World." The marked letters follow the same plan as the pronunciation key in The Winston Dictionary for Schools. All you need to do is to learn the sounds these marked letters stand for. Then use these same sounds in pronouncing all words marked the same way, no matter how long and difficult they may be. Whenever possible, each of the sounds shown below has two examples—one of them in a word of one syllable and one in a word of more than one syllable.

Pronunciation Key

ā	hāy, Euphrātes
ā̇	—, vā̇cation
â	câre, pârent
ă	măp, ăncestor
ȧ	grȧss, —
ȧ	—, sof*ȧ*
ä	pälm, härpoon
ă̇	—, Englă̇nd
ē	kēy, stampēde
ē̇	—, Bornē̇o
ĕ	fĕlt, stĕpfield
ĕ̇	—, camĕ̇l
ẽ	thẽ, rhinocẽros
ī	hīde, īceberg
ĭ	mĭnk, hemĭsphere
ō	gō, Mexicō
ō̇	—, ō̇asis
ô	côrn, Bôston
ŏ	fŏx, Cŏlorado
ū	lūte, fūture
ū̇	—, Ū̇nited States
û	tûrf, bûrden
ŭ	pŭlp, bŭtter
ŭ̇	—, walrŭ̇s
oi	soil, poison
o͞o	zo͞o, iglo͞o
o͝o	fo͝ot, wo͝odpecker
ou	s**ou**th, m**ou**ntain
g	**g**old, ever**g**reen (hard **g**)
g	**g**em, oran**g**e (soft **g**)
j	**j**ade, en**j**oyed
y	**y**urt, **y**esterday
ng	so**ng**, ju**ng**le
ch	**ch**eese, ran**ch**er
sh	**sh**ip, fini**sh**
th	nor**th**, every**th**ing (voiceless)
th	**th**en, sou**th**ern (voiced)
hw	**wh**ale, every**wh**ere

Some single letters always have the same pronunciation in English. These letters are **b**, **d**, **f**, **h**, **k**, **l**, **m**, **n**, **p**, **r**, **s**, **t**, **v**, **w**, and **z**. Three other single letters are not used at all to show you how to pronounce words. These are **c**, **q**, and **x**.

A

Africa (ăf′rĭ-kȧ), a large continent south of Europe; 16, 17, 19, 124, 146, 148, 168, 219, 228, 232, 234, 238, 254, 269, 274, 280, 284, 292, 298
North, 19, 220, 221
South, 124, 126, 147, 148, 196
people, 234

Alaska (ȧ-lăs′kȧ), a northern country in the continent of North America; 46–48, 56–58, 83
Alaska Highway, 80, 83, 85

alfalfa (ăl-făl′fȧ), a tall grass used as feed for cattle; 215

Amazon Valley (ăm′ȧ-zŏn văl′ĭ), low land on both sides of the Amazon River in the continent of South America; 266, 288

Antarctica (ănt-ärk′tĭk-ȧ), a continent surrounding the South Pole; 12–15, 24, 58, 84
Ice Cap, 24, 84
Ocean, 13, 16

Arabia (ȧ-rā′bĭ-ȧ), a country in the southern part of the continent of Asia; 204, 206, 209, 213, 214, 217
desert, 219, 228
people, 202, 211

Arctic Ocean (ärk′tĭk ō′shăn), a large body of water in the most northern part of the world; 9, 16, 24, 45, 47, 48, 58, 196

Arctic Shore (ärk′tĭk shôr), northern edge of the Continent of Asia near the Bering Strait; 44

Asia (ā′zhȧ), a large continent east of Europe; 19, 57, 84, 85, 99, 122, 124, 146, 148, 156, 179, 181, 182, 184, 221, 288, 298
grasslands, 174, 186, 196, 232
people, 44, 47, 52, 53, 164, 266

Atlantic Ocean (ăt-lăn′tĭk ō′shăn), the ocean separating America from Europe and Africa; 4, 7, 16, 53, 79, 85, 143, 219, 235

Australia (ôs-trāl′yȧ), an island continent southeast of Asia; 20, 124, 126, 147, 148, 150, 168, 196, 198

axis (ăk′sĭs), an imaginary line about which the earth rotates; 24

B

Baltic Sea (bôl′tĭk sē), a body of water in northern Europe; 85

bamboo (băm′bōō′), a tree-like grass plant that grows in the hot, wet areas of the world 106, 261, 262, 263, 265, 266, 273

barley (bär′lĭ), a kind of grain used as food; 210

bear (bâr), a large land animal with long shaggy fur; 32, 37, 40, 42

beaver (bē′vẽr), a small animal with thick fur, sharp teeth, and a wide flat tail; 71

Bering Strait (bē′rĭng strāt), a narrow body of water in the northern part of the world between the continents of Asia and North America; 44, 48

birchbark (bûrch-bärk), the smooth covering of the birch tree; 68, 70, 71, 86

blubber (blŭb′ẽr), the fat of sea animals; 32, 33, 38, 43

Borneo (bôr′nē-ō), a large island between Asia and Australia; 255, 261, 266, 294

Boston (bôs′tŭn), the capital of the state of Massachusetts and one of the chief sea ports of the United States; 296

Brazil (brȧ-zĭl′), a large country in the eastern part of the continent of South America; 170, 236, 238, 292

British Isles (brĭt′ĭsh īls), a group of islands to the north and west of Europe; 123
England, 123, 124, 144, 148
Ireland, 10, 16, 123

browse (brouz), to nibble off twigs or grass, 203, 206–209, 217

Buenos Aires (bwā′nōs ī′rās), the capital city and a seaport of Argentina, a country in the southern part of South America; 125

bulldozer (bŏŏl′dōz′ẽr), a large tractor-like machine used to clear land for road building; 81, 82

butter tree (bŭt′ẽr trē), a tree in hot wet jungles that bears nuts from which butter can be made; 261

C

cacao (kȧ-kā′ō), the seeds of a tropical evergreen tree from which cocoa and chocolate are made; 288, 290, 292, 293

cache (kăsh), a hiding place for food and supplies; 32, 35, 37, 42, 43

cactus (kăk′tŭs), a leafless desert plant with thick stems and sharp spines or needles; 188

California (kăl′ĭ-fôr′nĭ-ȧ), a state on the western coast of the United States; 130–135, 140–142, 144, 146, 147

camel (kăm'ĕl), a large four-footed, grass-eating animal of the desert having either one or two humps; 203, 208, 210

Canada (kăn'*a*-d*a*), a country north of the United States; 48, 56, 57, 62, 73, 80, 85, 98, 123

canal (k*a*-năl'), a man-made water channel used for shipping or for irrigation; 136

canoe (k*a*-no͞o'), a light boat made of bark, thin wood, canvas, or animal skins and moved by paddles; 68, 71–75

Cape Town (kāp' toun'), capital city of the Union of South Africa in the most southern part of the continent of Africa; 228

caravan (kăr'*a*-văn), a group of people traveling together for safety; 216, 219, 272

cargo plane (kär'gō plān), an airplane which carries supplies; 6

caribou (kăr'ĭ-bo͞o), a North American reindeer; 45, 51–53, 56, 58, 62–66, 68, 71, 83, 86

Caspian Sea (kăs'pĭ-ăn sē), a body of salt water in the southwestern part of the continent of Asia; 179

cassava (kȧ-sä'v*a*), a plant found in hot, wet regions. Tapioca is made from the thick roots of this plant; 276, 278

caterpillar tractor (kăt'ẽr-pĭl'ẽr trăk'tẽr), a powerful machine used for heavy hauling over uneven ground; 82

Central America (sĕn'trăl *a*-mĕr'ĭ-k*a*), south portion of North America between Mexico and South America; 293, 296–298

cheese (chēz), a food made of the pressed curd of milk; 115

Chicago (shĭ-kô'gō), a large city in the state of Illinois; 131

Chile (chĭl'ē), a country in western South America; 148

China (chī'n*a*), a country in eastern Asia; 104, 106–110, 148, 164, 288
  cotton, 167, 168
  farms, 99, 100, 102, 103, 166
  North, 167, 168
  people, 165
  rice, 167, 244
  South, 165, 166

citrus fruit (sĭt'rŭs fro͞ot), the fruit of trees such as the orange, lemon, lime and citron; 140, 141

Colorado River (kŏl'ō-rä'dō), a river flowing through the states of Colorado, Utah, and Arizona; 190, 221

combine (kŏm-bīn'), a machine which cuts and threshes wheat, oats, and other small grains; 95

compass (kŭm'p*a*s), an instrument for determining direction; 22–24

Congo forest (kŏng'gō fôr'ĕst), a large area of wild woodland in the region of the Congo River; 229, 269, 274, 285, 294

Congo River (kŏng'gō), a large river flowing through the region of the Equator in Africa; 229, 269, 281

continent (kŏn'tĭ-nĕnt), a large division or block of land; 11, 20, 123, 174

copper ore (kŏp'ẽr ôr), a mineral or rock bearing a reddish metal; 74, 75

corn belt (kôrn bĕlt), a large strip of land in the middle section of the United States where the climate is suitable for growing corn; 90, 94, 96, 99, 103, 125, 134, 164, 165, 229
  crib, 96, 97
  picker, 96, 97
  planter, 92

cotton belt (kôt'n bĕlt), a large strip of land in the southeastern part of the United States with a climate suitable for the growing of cotton; 122, 154–156, 160, 168
  bale, 156
  boll, 155
  gin, 156

creamery (krēm'ẽr-ĭ), a place where such products as cream, butter, and cheese are made and sold; 94

crop rotation (krŏp rō-tāt'shŭn), the plan of growing different types of plants in the same area of land; 91, 158

cultivator (kŭl'tĭ-vā'tẽr), a farm machine for loosening and turning over soil; 91, 92, 155
  cultivation, 138, 158, 159

D

dairy belt (dâr'ĭ bĕlt), a large strip of land in the northwestern part of the United States in which milk, butter and cheese are produced; 98

dam (dăm), a bank or wall built to hold back a flow of water; 122, 184, 187

date (dāt), the edible fruit of the date palm tree; 201, 204, 209–212, 214–217, 221, 280

Dawson Creek (dô'sŭn krēk), a town in Canada on the Alaskan border, also the starting point of the Alaska Highway; 80

Denmark (dĕn′märk), a country north of Germany in Europe; 4, 46
desert (dĕz′ẽrt), a large area of dry sandy waste land; 219, 229
direction (dĭ-rĕk′shŭn), a course or line of motion —north, south, east, and west; 16, 24, 25
drought (drout), continued absence of rain or moisture; 188
Dutch (dŭch), people or their language in the Netherlands, a country in northwestern Europe; 126
Dyak (dī′ăk), a person who is born and lives in Borneo; 265

E

earth (ûrth), the sphere or globe on which we live; 9, 24, 25, 42, 100, 103
East Indian Islands (ēst′ ĭn′dĭ-ăn ī′lănds), a group of large islands between the continent of Asia and Australia; 287, 288, 298
Ecuador (ĕk′wȧ-dôr), a country on the western coast of South America; 292
Egypt (ē′jĭpt), a country in northeastern Africa through which the Nile River flows; 220, 221
elephant (ĕl′ē-fănt), the largest of living animals, found in India and Africa, with thick wrinkled hide, a long trunk, and two long ivory tusks; 229
England (ĭng′glănd), see British Isles.
Equator (ē-kwā′tẽr), an imaginary line around the earth, equally distant from the North and South Poles; 25, 229, 235, 254, 287, 293
Eskimo (ĕs′kĭ-mō), one of a race of people living on arctic North American coasts; 4, 14, 22, 30–36, 38–40, 42–48, 52, 56, 57, 72, 196, 249
  houses, 30, 33, 45
Euphrates (ū-frā′tēz), a river which empties into the Persian Gulf; 221
Europe (ū′rŭp), a continent west of Asia and north of Africa; 3, 7, 16, 19, 133, 146, 174, 196
  people, 53, 124, 147
  trade, 45, 48, 109, 110, 125, 148, 150, 281, 285
evergreen forest (ĕv′ẽr-grēn fŏr′ĕst), a large tract of land covered with trees which remain green throughout the year; 116
explorer (ĕks-plôr′ẽr), a person who travels in far places in order to find out about them; 13, 24, 48

F

factory (făk′tō-rĭ), a place where goods are manufactured; 118, 122
Fairbanks (fâr′băngks), a town almost centrally located in Alaska; the northern end of the Alaska Highway; 58, 80
felt (fĕlt), a fabric made of wool, hair, and fur, matted or forced together by pressure; 176
fertilizer (fûr′tĭ-līz′ẽr), any plant food put on land to make it richer or more fertile; 158, 160
fish (fĭsh), an animal with a scaly body, gills instead of lungs, and fins which enable it to swim; 15, 31, 33, 35, 42, 52, 66, 67, 71, 280
Florida (flŏr′ĭ-dȧ), a state on the southeastern tip of the United States; 140
forest (fŏr′ĕst), a growth of trees covering a large tract of land; 24, 122, 131
  fire, 76, 78, 131
  ranger, 135
fox (fŏks), wild animal of the dog family with pointed ears and bushy tail, noted for its cunning; 31, 71
France (fråns), a country in southwestern Europe; 144
fur trapper (fŭr trăp′ẽr), one who traps fur-bearing animals for their skins; 62

G

Germany (jûr′mȧ-nĭ), a country in central Europe; 144
globe (glōb), a sphere showing the map of the earth, or an object, round like a ball; 1, 2, 9, 11, 16, 20
gold (gōld), a precious heavy metal, used for coinage and jewelry. When pure, it is a bright yellow color; 74
gourds (gôrds), any of a number of fleshy, many-seeded fruits with hard shells, related to the pumpkin or melon; 277
grain elevator (grān ĕl′ē-vā′tẽr), a warehouse for the storage of grain; 95
grass-eater (grȧs′ēt-ẽr), an animal who feeds upon plants; 230
grassland (grȧs′lănd), an area covered by green herbage or grass;
  in Africa, 228
  in Asia, 174
  in India, 238
  in South America, 236
  in United States, 186
Great Britain (grāt brĭt′ĕn), see British Isles; 10, 16, 123

Great Northern Forest (grāt nôr′thẽrn fŏr′ĕst), an extensive band of tree-covered land of northern Canada south of the tundra; 2, 62, 68, 74, 76, 78, 80, 84, 85, 86, 90, 97, 179

Great Slave Lake (grāt slāv lāk), a large body of water in the Great Northern Forest; 62

Greece (grēs), a country in southern Europe, west of Asia and east of Italy; 146

Greenland (grēn′lȧnd), a large island in the Atlantic Ocean, northeast of Canada; 1–4, 7, 9, 13, 16, 22, 24, 31, 46, 52, 229, 254
    Ice Cap, 4, 6, 11, 12, 15, 23, 31
    people, 30, 44

H

harpoon (här-po͞on′), a long spear with a rope attached used to strike or kill whales or large fish; 34, 38, 42, 46

hay (hā), different kinds of grasses cut and dried for fodder; 92, 94, 116

hemisphere (hĕm′ĭ-sfēr), a half sphere, especially a half of the earth; 25

herdsman (hûrdz′mȧn), a person who owns or tends cattle or sheep; 111, 112, 114, 115, 181, 196

hide (hīd), the skin of an animal; 122
    goat, 175
    rabbit, 34
    sheep, 178, 198

I

iceberg (īs′bûrg′), a large mass of ice broken from a glacier and floating in the sea; 14, 22, 23

Ice Cap (īs′ kăp), a large mass of ice which covers land; 1, 4, 9, 12, 16, 22, 43, 44, 84

Iceland (īs′lȧnd), an island in the northern part of the Atlantic Ocean; 3, 10, 16

igloo (ĭg′lo͞o), an Eskimo hut, dome-shaped, usually made of blocks of snow or ice; 32, 33, 36, 39, 43, 46, 53, 54

incubator (ĭn′kū̇-bā′tẽr), an apparatus for hatching eggs by artificial warmth; 91

India (ĭn′dĭ-ȧ), a country in the southern part of the continent of Asia; 18, 232, 238, 239, 250, 288

Indian (ĭn′dĭ-ăn), the original inhabitant of a region; 62–68, 71, 73–76, 80, 124, 288

Indian Ocean (ĭn′dĭ-ăn ō′shȧn), a large body of water lying south of Asia and east of Africa; 18, 19, 235

Indus (ĭn′dŭs), a river in northwestern India; 221

Ireland (īr′lȧnd), see British Isles

iron (ī′ẽrn), a silver-white metal which can be melted and worked into tools and implements; 122, 274

irrigation (ĭr′ĭ-gā′shŭn), the furnishing of a water supply, by ditches or canals, to land under cultivation; 134, 136, 143, 183

island (ī′lȧnd), a body of land entirely surrounded by water; 9, 135

Italy (ĭt′ȧ-lĭ), a country of southern Europe, west of Greece; 147, 148

ivory (ī′vō-rĭ), the hard, white substance which forms the tusks of an elephant and walrus; 34, 47, 272, 280, 284

J

jade (jād), a hard, semiprecious stone, green, white or blue, often carved; 108

Japan (jȧ-păn′), an island country in the Pacific Ocean; 19

jungle (jŭng′gl), any tract of land covered with thick, tangled plants and trees, usually in hot, wet regions; 255

K

kayak (kī′ăk), an Eskimo boat, made of sealskin stretched over a light frame about sixteen feet in length, and seating one person; 39, 42, 44, 45, 68

Kirghiz (kĭr-gēz′), a mountainous section of southeastern Russia on the Chinese border; Nomads in Asia; 176, 178–184, 196

koumiss (ko͞o′mĭs), a drink made from fermented milk; 180

L

Labrador (lăb′rȧ-dôr), a dependency of Newfoundland, on the extreme eastern coast of Canada; 3, 10, 23, 44, 48

lake (lāk), a large body of water entirely surrounded by land; 35

Lake Michigan (lāk mĭsh′ĭ-găn), one of the Great Lakes, between the states of Michigan and Wisconsin; 90

Lapland (lăp'lănd), a region of northern Europe having no definite boundaries. It covers the northern part of Sweden, Norway, Finland, and northwestern Russia; 53, 56–58

locust (lō'kŭst), a kind of grasshopper, destructive to plants; 203

loom (lo͞om), a frame or machine for weaving cloth; 104, 176

lumberjack (lŭm'bẽr-jăk), a man who cuts and prepares forest timber for market; 76, 78–80, 84

lute (lūt), a stringed musical instrument with a body like that of a mandolin; 178

lynx (lĭngks), a large, fierce wildcat with short tail, tufted ears, and fur; 71

M

Mackenzie River (m*ȧ*-kĕn'zĭ), a river flowing through northwestern Canada and emptying into the Arctic Ocean; 45, 57

magnetism (măg'nĕ-tĭzm), the property of attracting certain substances; 23

Malay Peninsula (m*ȧ*-lā pĕn-ĭn'sū-l*ȧ*), a piece of land in the southernmost tip of the continent of Asia surrounded on three sides by water; 266, 287, 288

map (măp), a picture on a flat surface, of the earth or some part of the earth, showing the size or position of parts represented; 7, 22, 23, 116

marten (mär'tĕn), a small fur-covered animal of the weasel family; 66, 71

Mediterranean climate (mĕd'ĭ-te-rā'nē-ăn klī'mĭt), type of climate found in certain areas, especially Mediterranean area; 134, 136, 139, 140, 146–148

Mediterranean Sea (mĕd'ĭ-te-rā'nē-ăn sē), a large body of water between Africa and Europe; 17, 19, 143, 144, 146

metalwork (mĕt'l-wûrk), objects made of metal; 109

metal, 74, 76, 78

Mexico (mĕk'sĭ-kō), a country in North America; 288

millet (mĭl'ĕt), a grain-bearing grass, widely used in Europe and Asia as food; 103, 234, 240, 243, 245, 276

mink (mĭngk), a fur-bearing animal somewhat like the weasel, living part of the time in water; 66, 71

Mississippi (mĭs'ĭ-sĭp'ĭ), the largest river in North America. It flows from the Rocky Mountains into the Gulf of Mexico; 90

moccasins (mŏk'*ȧ*-sĭns), deerskin or other soft leather shoes; 64

mohair (mō'hâr'), a woven material made from the hair of the Angora goat; 192

mountain (moun'tĭn), a natural elevation of rock or earth rising high above the level of the surroundings; 116, 120, 121, 130, 131

muskeg (mŭsk'ĕg), a swamp filled with several feet of dead moss; 82

muskrat (mŭsk'răt'), a ratlike water animal of North America, with valuable dark-brown fur and webbed hind feet; 67, 83

N

New York (nū yôrk), a large city in the southeastern part of the state of New York, at the mouth of the Hudson River; 131, 133, 218, 296

Nile (nīl) a large river in northeastern Africa flowing into the Mediterranean Sea; 220, 221

nomad (nō'măd), one of a roving tribe of people, as Arabs or gypsies, who have no fixed home, but wander about in search of game and pasture; 178–184, 204

Nome (nōm), town on the northwestern coast of Alaska—center of the gold-mining district; 47, 58

North America (nôrth *ȧ*-mĕr'ĭ-k*ȧ*), a continent; the northern half of the Western Hemisphere; 10, 11, 15, 134, 146

land, 98, 221

people, 44, 52, 124

products, 78, 84, 85, 148, 286, 288, 293

northeaster (nôrth'ēs'tẽr), a hard wind or storm from the northeast; 192

North Pole (nôrth pōl), the northern end of the earth's axis; 24, 25, 48, 86, 254

O

oasis (ō-ā'sĭs), a fertile place in a desert; 214, 215, 217, 219–221, 228

ocean (ō'shăn), the vast body of salt water covering three fourths of the globe; also, any of its chief divisions; 135

see Antarctic, Atlantic, Arctic, Indian, Pacific

oil (oil), a greasy or fatty substance of animal, vegetable, or mineral origin, used variously as a lubricant, food, or fuel; 33

palm, 280, 284

orange (ŏr′ĕnj), citrus fruit of an evergreen tree; 130
navel, 132
Valencia, 133

P

Pacific Ocean (p*a*-sĭf′ĭk ō′shån), the large body of water between the continents of America, Asia, and Australia; 16, 20, 56

packing house (păk′ĭng hous′), a place of business where supplies are prepared in bundles or boxes for market; 97, 139, 140

paddy (păd′ĭ), a small water-covered field where rice is grown; rice in the husk; 167, 168

palm (päm), a tropical tree with a crown of large fan-shaped leaves. See date, oil, raffia, sago

parka (pärk′ȧ), a fur-lined coat with an attached hood; 47

pecan tree (pē̇-kăn′ trē), a kind of hickory tree of the southern United States; 159, 191

penguin (pĕn′gwĭn), a large Antarctic sea bird which can not fly but uses its wing-like limbs as paddles in swimming; 14, 15, 22, 86

pestle (pĕs′l), a tool for pounding substances to a powder; 243

petroleum (pē̇-trō′lē̇-ŭ̊m), a dark, yellowish-brown liquid that is obtained from the earth by means of wells, and is the source of gasoline, kerosene, and other products; 288

Philadelphia (fĭl′*a*-dĕl′fĭ-*a*), a large city on the Delaware River in southeastern Pennsylvania; 296

Philippine Islands (fĭl′ĭ-pēn ī′lånds), an island country in the Pacific Ocean, northeast of Borneo; 19

pine tree (pīn trē), a kind of cone-bearing tree having clusters of evergreen needle-like leaves; 130

plantation (plăn-tā′shŭ̊n), a place or type of farm where plants are cultivated; 255, 286
banana, 293–296

Plata (plä′tä), a river in the country of Argentina in South America; 125, 126

poison-gas (poi′zn-găs), any fumes or vapor which make breathing difficult or impossible, often used in spraying crops to kill insects; 139

polar bear (pō′lẽr bâr), the large, white bear of the polar regions; 23, 32

porcelain (pôr′sē̆-lĭn), a fine, white, glazed earthenware which is unusually hard, and so thin that light can be seen through it; 108, 109

Portugal (pôr′tū̇-gål), a country on the western coast of Europe, south and west of Spain; 236

primitive (prĭm′ĭ-tĭv), belonging to the earliest ages; simple or crude; 266

prospector (prŏs′pĕk-tẽr), one who explores a region, looking for oil, gold, silver, or other products of the earth; 74, 75, 80

pulp (pŭlp), the soft, fleshy part of fruit or plant stems; 78

Punan (po͞o-nän), one of a Dyak people in the forest-land of Borneo; 255, 256, 258, 260–263, 266, 281, 285

python (pī′thŏn), a large serpent which crushes its prey; 258

Q

quern (kwûrn), a hand mill used for grinding grain; 210

R

radar (rā′där), a radio sending and receiving apparatus; 23

radio beam (rā′dĭ-ō bēm), signals sent out by radio to help pilots find their position; 23

raffia palm (răf′ĭ-ȧ päm), a palm found on island of Madagascar, the fibre of which is used in weaving hats, baskets, and the like; 280

ranch (rănch), a farm for the raising of cattle, horses, or sheep in large herds; 186, 187, 190

raw material (rô mȧ-tē′rĭ-ål), a substance in its natural state from which finished goods are made; 123

Red Sea (rĕd′sē′), a branch of the Indian Ocean, between Arabia and Egypt; 219

reindeer (rān′dēr′), a large deer with branched antlers, found in northern regions, also known as tame caribou; 52–54, 56–58, 86

reservoir (rĕz′ẽr-vwôr), a place where anything, especially water, is collected and stored for present or future use; 136

rhinoceros (rī-nŏs′ẽr-ŏ̊s), a large, thick-skinned, three-toed animal of tropical Asia and Africa; 258

rice (rīs), a grass, valuable for its seed, grown in wet soil in a warm climate; 160, 162, 167

Rio de Janeiro (rē′ō dā zh*ȧ*-nā′rō), a seaport, capital of the country of Brazil; 236

rubber (rŭb′ẽr), the sap from various tropical trees prepared for use for waterproofing, automobile tires, and many other things; 286, 287

synthetic, 288

rupee (ro͞o-pē′), a unit of money in India; 248

Russia (rŭsh′*ȧ*), a part of the Union of Soviet Socialist Republics in Europe and Asia; 48, 174, 182

S

sago (sā′gō), the soft, spongy substance or pith in the center of the stem of certain East Indian palms; 262, 263

Sahara Desert (s*ȧ*-hä′r*ȧ* dĕz′ẽrt), a vast region of dry sandy land in northern Africa; 219–221, 228, 229

St. Lawrence (sānt lô′rĕns), a river flowing from Lake Ontario into the Gulf of Saint Lawrence; 78, 79, 85

Santos (sän′tōs), a city in Brazil on the Atlantic coast of South America, near Rio de Janeiro; 236

sawmill (sô′mĭl), a building where logs are sawed into lumber; 78, 79

scythe (sī*th*), a cutting tool with a long handle for mowing grain or grass by hand; 116

sea (sē), a body of salt water smaller than an ocean; 30

seal (sēl), any of various flesh-eating sea animals found in arctic regions. They are hunted for their hide and oils; 14, 15, 22, 30–40, 42, 44, 45, 52, 53, 56, 63, 86

sheaf (shēf), a number of stalks of grain tied into a bundle; 100

sheik (shēk), the head of an Arab family, tribe, or clan; 202–204, 210, 216, 218

shellfish (shĕl′fĭsh), a water animal having a shell, such as a clam, lobster, or shrimp; 30

shrimp, 30, 37

shepherd (shĕp′ẽrd), a person who cares for sheep; 206

ship (shĭp), a large seagoing vessel; 24

refrigerator, 196

shuttle (shŭt′l), a tool used in weaving cloth; 104

sickle (sĭk′l), a hand tool with a curved steel blade and a short handle, used in cutting grass or grain; 100

silk (sĭlk), a fine, soft fabric made from threads spun by the silkworm; 108, 122

silver (sĭl′vẽr), a soft, shining, white metal, used for table implements, dishes, and jewelry; 74

silversmith, 243

sinew (sĭn′ū), a tendon or tough piece of tissue joining muscle to bone; 34

Singapore (sĭng′g*ȧ*-pôr), chief city and capital of the Malay Peninsula; 287, 288

sledge (slĕj), a vehicle with runners for carrying heavy loads over snow or ice; 35, 36, 39, 64, 65

snake charmer (snāk chärm′ẽr), a person who calms snakes by means of music; 248, 249

snow (snō), frozen water vapor in the form of white, feathery flakes falling through the air, also, masses of flakes on the ground; 32

house, 36

shoes, 64, 65

soapstone (sōp′stōn′), a kind of soft, grayish stone with a smooth surface; 33

soil (soil), the loose top layer of the earth's surface; 100

soldier ant (sōl′jẽr ănt), a small insect of the Congo which travels in a large group, eating every living thing in its path; 278, 279

sorghum (sôr′gŭm), a cane-like grass having a sweet juice from which sugar is made; 102, 232, 234

South America (south *ȧ*-mĕr′ĭ-k*ȧ*), the southern continent of the Western Hemisphere; 16, 125, 147, 298

grassland, 196, 232, 236, 238

people, 123, 124, 266, 285

products, 132, 147, 148, 168, 198, 287, 292

South Pole (south pōl′), the southern end of the earth's axis; 24, 25, 86, 254

Soviet Union (sō′vĭ-ĕt′ ūn′yŭn), see Russia; 174, 182

soy bean (soi′ bēn′), a small plant, the seeds of which yield oil and flour; 102, 103

Spain (spān), a country in southwestern Europe; 133, 146, 148

sphere (sfēr), a round solid object like a ball; 9, 25

stampede (stăm-pēd′), a sudden, wild running away of a herd of animals; 236

steel (stēl), a hard, tough metal which is a mixture of iron and carbon; 122

step-field (stĕp′fēld), a small, level field dug into a hillside like steps; 166, 167

stream (strēm), flowing water, a creek or small river; 35

summer (sŭm′ẽr), the hottest season or part of the year; 31

Sweden (swē′dn), a country in the eastern part of the Scandinavian Peninsula; 144

sweet potato (swēt′pȱ-tā′tō), the sweet, starchy root of a tropical American vine, used as a vegetable; 168

Switzerland (swĭt′zẽr-lȧnd), a country in central Europe; 111, 112, 114, 115, 120–123, 144, 184

Syr Darya (sĕr där′ya), a river in central Asia in Russia; 179, 183

T

taiga (tī′gȧ), a vast swampy forest region of northern Europe and Asia; 84, 85

Tanana (tä′nä-nä′), a river in central Alaska. It flows into the Yukon River; 80

tank (tăngk), a large circular container for holding water; 188

taro (tä′rō), a tropical plant grown in the Pacific Islands, where its root is used for food; 256, 258, 261, 262, 266

tepee (tē′pē), a cone-shaped tent or wigwam; 64, 65, 72

terrace (tĕr′ĭs), a raised level space or platform of earth with sloping sides; 160

Texas (tĕk′s*a*s), a state in the southern part of the United States; 140, 186, 187, 191, 194, 196

Tigris (tī′grĭs), a river in Asiatic Turkey and Iraq; 221

toboggan (tȯ-bŏg′ăn), a kind of long, flat sled without runners; 64

topsoil (tŏp′soil), soil rich in plant food; 160

tractor (trăk′tẽr), a heavy vehicle for hauling or pulling machinery; 96, 97, 102, 136

trading post (trād′ĭng pōst), a place where goods are bought and sold; 63, 64, 67, 68, 71–75

treadle (trĕd′l), a part of a weaving machine operated by the foot. It supplies the power for the machine; 104

tribe (trīb), a group of people, usually consisting of several clans, under one chief; 181, 182, 184

Tripoli (trĭp′ȯ-lĭ), a city on the northern coast of Africa; 228

tsetse (tsĕt′sē), a small African fly which causes germs to enter the blood and produce disease; 270

tundra (to͞on′dr*a*), a stretch of flat or rolling marshy land found in northern arctic regions; 52–54, 56, 58, 63, 84

turf (tûrf), the top layer of ground, containing plant waste and matted grass roots; 54

U

umiak (o͞o′mĭ-ăk), the Eskimo family boat, made of skins stretched over a frame; 39

United States (ů-nīt′ĕd stāts), a country in North America; 14, 44, 46, 84, 123, 124, 148, 165, 239, 269, 283
  climate, 134, 146, 164
  land and crops, 98, 140, 142, 147, 164, 170, 186, 280
  trade, 3, 4, 6, 45, 57, 73, 79, 109, 110, 114, 168, 198, 274, 285, 288, 291, 294–296

V

valley (văl′ĭ), low land between hills or mountains; 116, 118, 120, 121, 122

Valparaiso (văl′p*a*-rȧ-ī′zō), a seaport city in Chile in South America; 148

vegetable (vĕj′ē̇-t*a*-bl), a plant, especially one cultivated for food; 92, 95, 100

vetch (vĕch), a plant of the pea family, often used as feed for cattle; 158

village (vĭl′ĭj), a small group of houses in a country district, smaller than a town; 122, 126

Virginia (vẽr-jĭn′ĭ-*a*), a southeastern state in the United States; 181

vulture (vŭl′tůr), a large bird of prey that feeds on the flesh of dead animals; 230

W

walrus (wôl′rŭs), a large arctic sea animal related to the seal; 30–33, 35, 37, 42, 46, 52, 53, 56

water wheel (wô′tẽr hwēl′), a wheel turned by the direct action of flowing or falling water; 184

weather station (wĕ*th*′ẽr stā′shŭn), a place where men test the state or condition of the air; 7, 8, 22, 30
  Greenland, 5

weaving (wēv′ĭng), the process of making cloth on a loom; 104

West Indian Islands (wĕst′ ĭn′dĭ-ăn ī′lȧnds), a group of islands in the Atlantic Ocean, east of Central America; 286

whale (hwāl), a huge warm-blooded, air-breathing sea animal with finlike forelimbs, no hind limbs, and a fishlike tail; 14, 32–34

Whang River (hwäng), a river in China; 99

wheat (hwēt), a tall, slender, cultivated grass bearing long spikes of seeds; 102

White Sea (hwīt′ sē), an arm of the Arctic Ocean, extending southward into northern European Russia; 85

windrow (wĭnd′rō′), a long, low ridge of raked hay; 92, 94

winnow (wĭn′ō), to blow waste or chaff from grain by a current of air; 246

winter (wĭn′tẽr), the coldest season of the year; 36, 43

wolf (wo͝olf), a savage meat-eating animal of the dog family; 31, 56–58, 71, 195

wool (wo͝ol), the soft curly coat of the sheep and some related animals; 122

Y

Yukon (yo͞o′kŏn), a river in Canada and Alaska flowing into the Pacific Ocean; 45, 47

yurt (yo͝ort), a light circular tent made of skins stretched over a framework. It is used by the Kirghiz and other nomadic tribes of Siberia in Russia; 176, 180, 181

Z

zoo (zo͞o), a park or any other large enclosure in which living animals are kept for public view; 279

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hāy, vȧcation, câre, măp, gràss, päIm, locȧl, sofȧ, kēy, Bornēo, fĕlt, camẽl, rhinocēros, hīde, mĭnk, gō, ōasis, côrn, fŏx, lūte, Ūnited, tûrf, pŭlp, walrŭs, soil, iglo͞o, fo͝ot, south, gold, orange, jade, yurt, jungle, cheese, ship, north, then, everywhere

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